AppleWorks Forum

The Monthly Publication of **NAUG:** ***The National AppleWorks Users Group***

Volume VI, No. 10 **Five Dollars**

TABLE OF CONTENTS

Support for AppleWorks and ///EZ Pieces Users

Problems Printing Tabs

Dear Cathleen:

AppleWorks 3.0 handles tabs correctly when I print complete documents. But I get unpredictable results when I print a portion of a document. Sometimes AppleWorks handles the tabs properly, sometimes it doesn't. Is this a problem with AppleWorks or with my printer?

Charles White
Ypsilanti, Michigan

[Ed: You must "print" the current Tab Ruler if you want AppleWorks to handle tabs correctly when you print a portion of a document. That is, the current Tab Ruler must appear at the beginning of the material you print when you choose the "This page", "Page to Page", or "Cursor" options on the AppleWorks Print From Menu.

Follow these steps to get the correct output:

1. *Issue an Apple-Z to display the Tab Rulers.*
2. *Put a copy of the appropriate Tab Ruler at the beginning of the block of text you will print .*
3. *Put the cursor on that Tab Ruler command and issue the Apple-P command.*

NAUG plans to publish a list of user work-arounds that overcome the limitations of AppleWorks 3.0's tab system. Please send your ideas to "Tab Work-Arounds", NAUG, Box 87453, Canton, Michigan 48187.]

AppleWorks Forum

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How to Cancel Call Waiting

Dear Cathleen:

I want to thank **NAUG** for running an outstanding bulletin board. I think that **NAUG** members who haven't used the board will be surprised at how much they can learn by reading the messages and sharing ideas with their colleagues on the system.

However, now that I've added call waiting to my telephone service, I get cut off from the board every time I get an incoming call. Any idea how I can overcome this problem?

Brent Barnes
Lake Worth, Florida

*[Ed: Most telephone companies let you temporarily turn off your call waiting service by dialing *70. If your system supports this option, you should change your communications program so it dials *70,6153598238 to reach the board. ("*70" turns off call waiting; the comma tells the system to pause before dialing the rest of the number. The remaining digits are the direct dial number to the **NAUG** BBS.) Call waiting service will resume the next time you use the telephone.*

*Some telephone companies let you press the "#" key instead of pausing. If your system offers this option, enter the string *70#6153598238 to dial the **NAUG** BBS.*

If your telephone system doesn't let you cancel call waiting, you can use the call forwarding service to temporarily cancel call waiting. Just forward all calls to yourself while you are online. The caller will get a busy signal and you will stay connected to the BBS.]

The ***National AppleWorks Users Group*** **(NAUG)** is an association that supports AppleWorks users. **NAUG** provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the ***AppleWorks Forum***.

Configure Your Zip Chip Correctly

Dear Cathleen:

I recently noticed that my 4 megahertz Zip Chip-equipped Apple IIe at home seemed to run faster than the 8 megahertz Zip Chip-equipped Apple at my office. My investigation revealed that the Zip Chip default runs slot 5 at "Normal" speed. I use slot 5 for my PC Transporter, which also serves as a 768K memory card for the IIe. Thus, the Zip Chip default settings were slowing AppleWorks down to one megahertz whenever it accessed the memory on that card.

The ZIP.CONFIG program on the Zip Chip Utilities Disk let me change the speed of that slot to "Fast". Does that make a difference!

Keith Johnson
Sparks, Nevada

[Ed: Zip Chip owners: Check your configuration and peripherals. The chips default to running slots 1, 3, and 4 at "Fast" speed and slots 2, 5, 6, and 7 at "Normal" speed. You should change the settings if you put a memory card in any of the "Normal" slots.]

Kudos for Quality Computers

Dear Cathleen,

I'd like my fellow **NAUG** members to know about my recent experience with Quality Computers.

My six month old Quality QC100 hard drive recently failed. Quality's technical support representative diagnosed the problem over the phone and told me how to fix the unit. I was afraid to do any soldering, so I returned the drive to the company. They received the drive on Friday and had it back in the mail to me the following Monday. Now *that's* what I call service.

Bruce Shanker
Warminster, Pennsylvania

*[Ed: **NAUG** receives numerous letters that compliment Quality Computers for its excellent service.]*

Problems with Desk Accessories

Dear **NAUG**:

I enjoy using my new Quickie scanner to scan documents and graphics. However, I experienced some crashes and lockups when I first tried to use the scanner.

The problem turned out to be a conflict between the software that came with the scanner and the MenuBar New Desk Accessory clock in my GS/OS System Folder. The scanner worked reliably when I removed the clock accessory but failed when I reinstalled the clock.

There is a lesson here: If you have a problem with a new piece of hardware or software, test the unit with an unmodified copy of your operating system. If that solves the problem you've gone a long way to deciding how to proceed.

Kevin Noonan
Croyden, Victoria
Australia

*[Ed: **NAUG** members with Apple IIGS computers can use INIT.MASTER (on the GS.PowerTools Disk) to help identify conflicts between CDAs, NDAs, and INITs. INIT.MASTER lets you disable and re-enable Desk Accessories and INITs without rebooting your system. See page 32 of last month's issue of the **AppleWorks Forum** for a description of the 15 utilities on that disk.]*

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Æ Update . . .

GS-RAM III is the latest IIGS memory expansion board from the 11 year old company that has shipped *over a quarter of a million* memory expansion boards for Apple II computers. GS-RAM III is an economical and compact 4" x 2 1/2" design that uses the minimum components for maximum efficiency giving you greater reliability and less heat build-up. GS-RAM III is much more efficient than competing designs that use two memory boards and up to 10 times the components for the same memory size. GS-RAM III is fully DMA compatible and is expandable in 1 - 4Mb sizes using only 2 chips per Mb. Attach an optional GS-2 Megabyte Expander for a total of 6 Megabytes.

Æ is offering a TransWarp GS performance boost. The proven and reliable stock TransWarp GS contains an 8K cache and more than doubles the speed of the IIGS. The new 32K Cache Upgrade will provide an additional 22-35% performance boost to the TransWarp GS. $109 is the Suggested Retail for this user-installable upgrade. The *Suggested Retail Price* for TransWarp GS with 8K Cache is now only $299 and only $399 with 32K Cache.

Æ releases Vulcan Gold and Gold-Cache Upgrade. Vulcan Gold is an internal hard drive for the IIGS, IIe and II Plus that supports GS/OS, ProDOS, DOS 3.3, Apple Pascal, CP/M and even MS-DOS for the PC Transporter. The new Vulcan Gold, available in 40Mb & 100Mb sizes and housed in a metallic gold case, contains a super-fast, state-of-the-art IDE caching drive mechanism. Vulcan Gold still retails for only $899 for the 40Mb version and $1795 for the 100Mb version.

Vulcan Gold contains a number of powerful software enhancements over its predecessor. Compared to the original 40Mb and 100Mb IIGS Vulcan, the new software offers significant performance increases — 50% on reading data and 300 - 900% when writing data. Instead of waiting for the system to boot in order to access different Vulcan partitions, the new software allows the user to instantly choose which partition to boot from by simply pressing the spacebar. In addition to choosing a partition from this menu, the user can choose to boot from another drive other than the Vulcan. A new and cleaner ROM provides more efficient operation.

Current 40Mb and 100Mb IIGS Vulcan owners can upgrade to these powerful software enhancements by obtaining the Gold-Cache Upgrade for $59. For IIe and 20 Mb Vulcan owners, call Æ for a detail of features that can help your performance.

Æ's new 5.25" drive is compatible with the Mac LC IIe Emulation Card. Apple's IIe Emulation Card for the Macintosh LC contains a DB-19 connector for connecting the Applied Engineering Apple II 5.25" Drive. Applied Engineering's new Apple II 5.25" Drive retails for only $189.

The new Ready Express telecommunication solution is available. Ready Express is a complete telecommunication package for the Apple IIGS, enhanced IIe, IIc and IIc Plus. The new package contains powerful ReadyLink communication software and the new DataLink II Express external modem with V.42bis. ReadyLink ($99 value) contains a number of extensive features including macros, pull-down menus and VT-100 terminal emulation. V.42bis provides automatic error correction and an effective speed of up to 9600bps. Over $200 of popular on-line service discounts are included with Ready Express. Optional GS Send-Fax allows a IIGS user to fax text and graphics from any GS/OS application. Ready Express retails for only $299 and only $349 with GS Send-Fax.

Æ has a multi-line technical support bulletin board. The free BBS is available 24 hours a day, 7 days a week. Troubleshooting tips, latest Æ software revision numbers, and a host of other information are available for users with any 300, 1200, or 2400 bps Hayes-compatible modem (set for No Parity) by dialing (214) 241-6677. If your modem supports V.42bis and MNP-5, then data compression and automatic error correction are supported. If Æ users need to contact Applied Engineering Technical Support directly for a knowledgeable Apple II technical expert, they can call 900-884-0123, Monday — Friday, 9:00 a.m. - 5:00 p.m. Central Standard Time. The cost of the call is $1.50 per minute with no long distance charge.

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A Teacher's Seating Chart

By Stan Hecker

I could never be a teacher. Aside from the hard work of teaching, imagine having to learn between 25 and 150 names and faces in just a few weeks. This month's template (see *Figures 1* and *2*) makes that part of the job easier.

The template, developed by Mitchell Bernstein, uses the AppleWorks 3.0 spreadsheet module to let you create and update a seating chart without retyping names as students enter, leave, and change seats in your classes. *[Ed: This template uses AppleWorks 3.0's @LOOKUP function to copy text between cells. That feature is not available in earlier versions of AppleWorks.]*

Mr. Bernstein suggests that creative users can modify the template so it becomes useful to anyone who must prepare time schedules or must connect a name with a location. That includes building managers, motel operators, parking garage and restaurant managers, and anyone who prepares work schedules.

The template also demonstrates the branching logic and text manipulation features in AppleWorks 3.0.

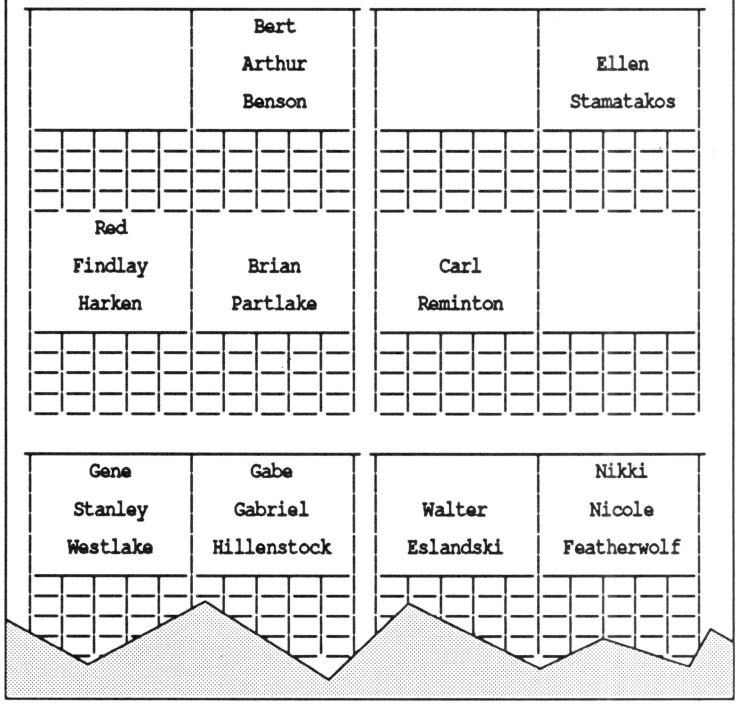
As you can see from *Figure 2*, the teacher enters the students' names in the upper left-hand corner of the template. LOOKUP formulas copy the names into the correct cells in the chart.

The Classroom

Mr. Bernstein's classroom has 36 desks, arranged in groups of four (see *Figure 2*). He numbers the desks from front to back, starting from the front left corner of the room. You can change the numbering system to suit your needs, but we will use Mr. Bernstein's system to build the template.

Below each seat in the chart are 20 boxes you can use to write grades or attendance data for the children in the class. The four rows of five boxes each make this area suitable for recording data for one month of classes.

Figure 1: The Seating Chart



Building the Template

Save your work often as you follow these steps *[Ed: A working model of this template appears on this month's **NAUG on Disk**.]*:

1. Begin a new spreadsheet called "Seat Chart".
2. Use the Apple-V command to set the default column width to 14 characters and the recalculation frequency to "Manual".
3. Use the Apple-L command to make columns I, K, M, N, O, Q, S, T, U, W, and Y one character wide. Make column A five characters wide and columns B, D, F, and H three characters wide.
4. Go to the Options Menu and set the characters per inch to "17" and the Print Headers Command to "No".
5. Enter the numbers Ø through 37 in cells B21 through B58. Enter the numbers, not formulas

Figure 2: The Complete Template

```
    A    B       C       D       E       F       G       H I     J       K       L       MNO     P       Q       R       STU     V       W       X       Y       Z
 1|
 2|         A Classroom Seating Chart--An AppleWorks Template
 3|
 4| Starting:  Use the overstrike cursor to type the students name in any
 5|       order in rows 22 through 57 in columns C, E, and G. Then enter
 6|       the students' seat numbers in column B.
 7|
 8| Process:  Put the cursor in cell B22. Use Apple-A to arrange rows 22
 9|      through 57 after specifying "Values from 0 to 9". After arranging,
10|      check to be sure that the numbers from 1 through 36 are all used in
11|      column B and that each is used only once.
12|
13|      Recalculate (Apple-K). The names will appear in the proper places
14|      on the seating chart. Then print the "Block" in cells
15|      I59 through Y121 to produce the new seating chart.
16|
17| Changes:  When students change seats, ONLY change the SEAT NUMBER in
18|         column B next to their name or names. Then re-process as above.
19|
20|          LAST NAME        FIRST NAME        NICKNAME
21|       0                0                 0
22|       1                1SEAT 1           1
23|       2                2SEAT 2           2
24|       3                3SEAT 3           3
25|       4                4SEAT 4           4
26|       5                5SEAT 5           5
27|       6                6SEAT 6           6
28|       7                7SEAT 7           7
29|       8                8SEAT 8           8
30|       9                9SEAT 9           9
31|      10               10SEAT 10         10
32|      11               11SEAT 11         11
33|      12               12SEAT 12         12
34|      13               13SEAT 13         13
35|      14               14SEAT 14         14
36|      15               15SEAT 15         15
37|      16               16SEAT 16         16
38|      17               17SEAT 17         17
39|      18               18SEAT 18         18
40|      19               19SEAT 19         19
41|      20               20SEAT 20         20
42|      21               21SEAT 21         21
43|      22               22SEAT 22         22
44|      23               23SEAT 23         23
45|      24               24SEAT 24         24
46|      25               25SEAT 25         25
47|      26               26SEAT 26         26
48|      27               27SEAT 27         27
49|      28               28SEAT 28         28
50|      29               29SEAT 29         29
51|      30               30SEAT 30         30
52|      31               31SEAT 31         31
53|      32               32SEAT 32         32
54|      33               33SEAT 33         33
55|      34               34SEAT 34         34
56|      35               35SEAT 35         35
57|      36               36SEAT 36         36
58|      37               37                37
```

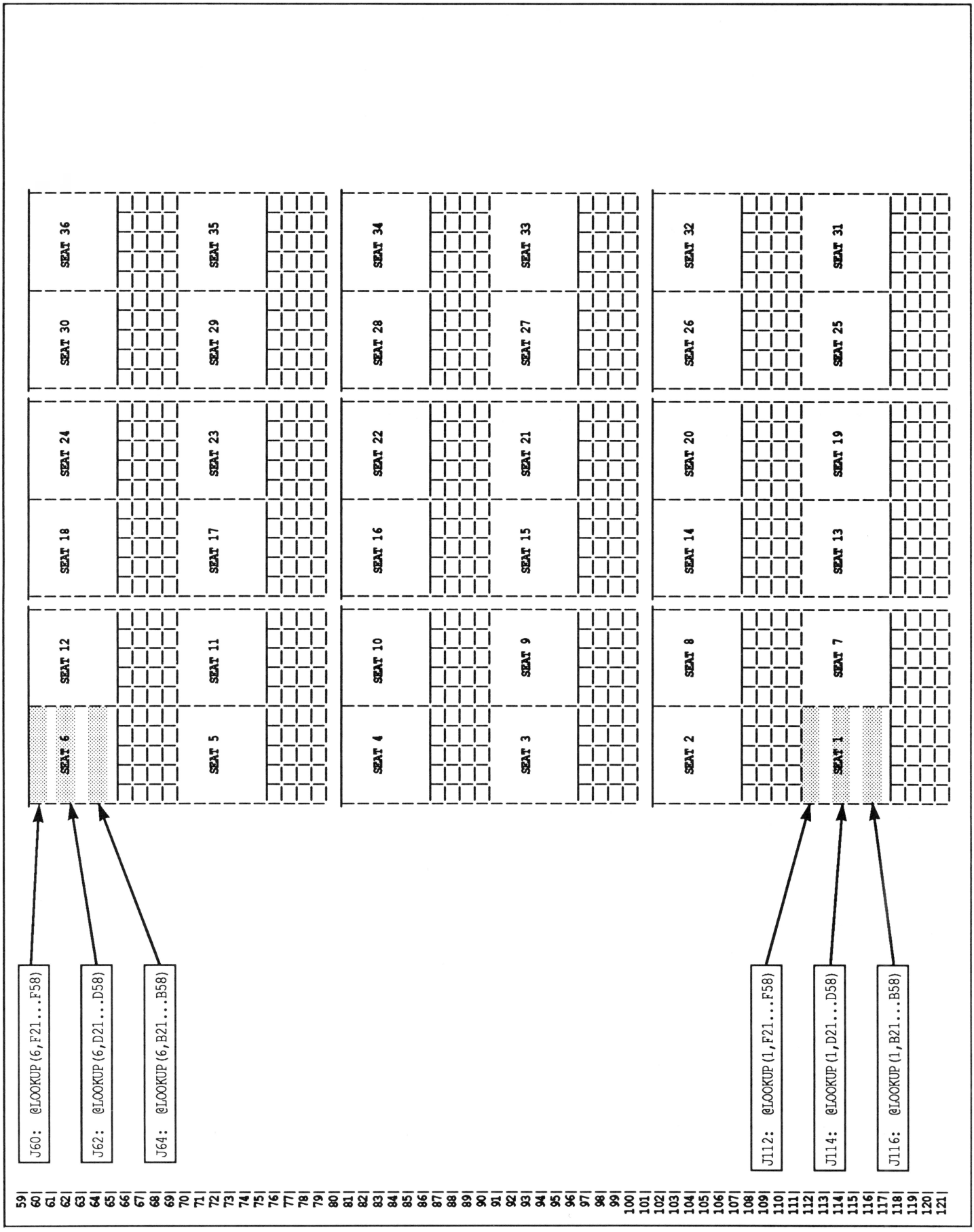

SEAT 36
SEAT 30
SEAT 24
SEAT 18
SEAT 12
SEAT 6
SEAT 5
SEAT 35
SEAT 29
SEAT 23
SEAT 17
SEAT 11
SEAT 34
SEAT 28
SEAT 22
SEAT 16
SEAT 10
SEAT 4
SEAT 33
SEAT 27
SEAT 21
SEAT 15
SEAT 9
SEAT 3
SEAT 32
SEAT 26
SEAT 20
SEAT 14
SEAT 8
SEAT 2
SEAT 31
SEAT 25
SEAT 19
SEAT 13
SEAT 7
SEAT 1
J60: @LOOKUP(6,F21...F58)
J62: @LOOKUP(6,D21...D58)
J64: @LOOKUP(6,B21...B58)
J112: @LOOKUP(1,F21...F58)
J114: @LOOKUP(1,D21...D58)
J116: @LOOKUP(1,B21...B58)

Figure 3: Basic Name and Attendence Box

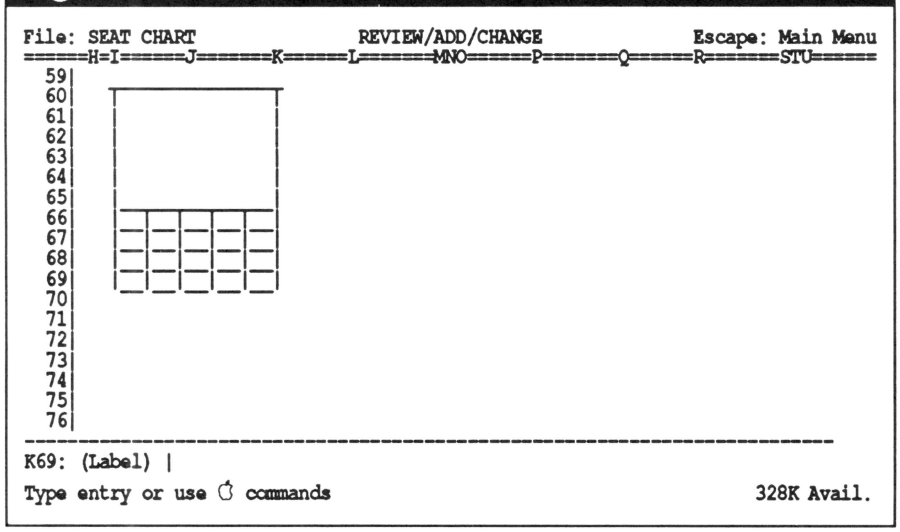
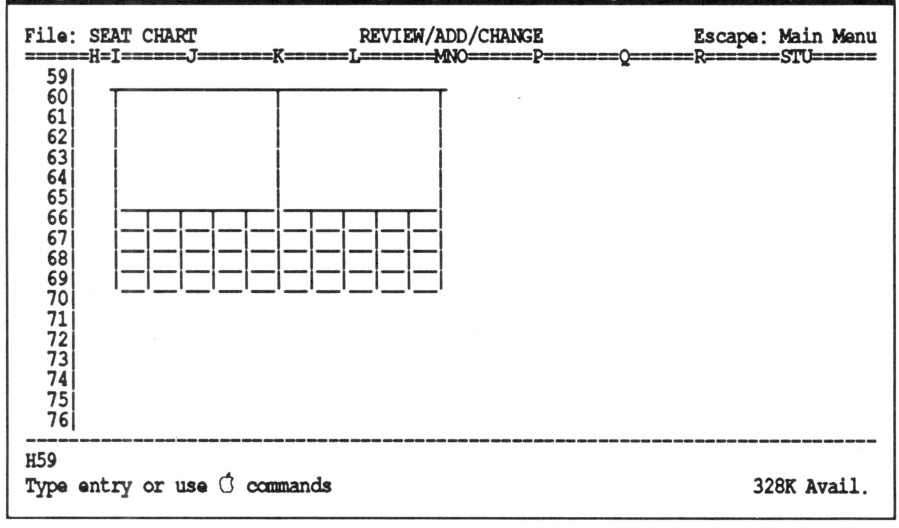


Figure 4: Screen Display after Step 11



that generate the numbers; formulas will make it difficult to reassign seats later.

6. Enter "+B21" in cell D21. Then use the Apple-C command to copy cell D21 into cells D22 through D58. Use the "Relative" option when AppleWorks asks "Reference to B21?"

7. Enter "+B21" into cell F21 and copy that cell into cells F22 through F58. Once again, use the "Relative" option.

8. There is no Seat Ø or Seat 37 in the classroom; you will use these rows to hold series of equal signs that will serve as borders for the chart.

   Put the cursor in cell C21 and type a quotation mark (") to tell AppleWorks you will enter a label. Then type repeated equal signs to fill the cell. Repeat this process in cells E21 and G21. That establishes the underline for the column headings that appears in *Figure 2*.

9. Repeat step #8 in cells C58, E58, and G58.

Build Chart Display Boxes

10. Put the cursor in cell I59 and use the underline and vertical line characters to draw the box that appears in *Figure 3*. Start each cell by typing a quotation mark. Use the Apple-C command to facilitate the process. For example, cells I60 through I69 are identical to cells K60 through K69. (These cells contain a vertical line character.) Similarly, cells J66 through J69 share the same pattern (two horizontal lines followed by a vertical line, repeated five times).

Now you will use the box in *Figure 3* to prepare the complete set of 36 boxes that appear in *Figure 2*. Follow these steps:

11. Use the Copy Command to copy the block of cells from J59 through K69 into cells L59 through M69. That generates two side-by-side boxes that share the vertical line in column K. Your screen should now look like the example in *Figure 4*.

12. Copy cells I60 through M69 into cells I70 through M79. Your screen should now look like the example in *Figure 5*.

Now that you prepared a block of four "seats", you can copy the cells into other locations on the template.

13. Copy the set of four "seats" onto the clipboard as a block. Then copy them from the clipboard into cells I80 through M100 and into cells I101 through M121. That will leave one blank row between each group of boxes.

You have defined the first two rows of seats. Now

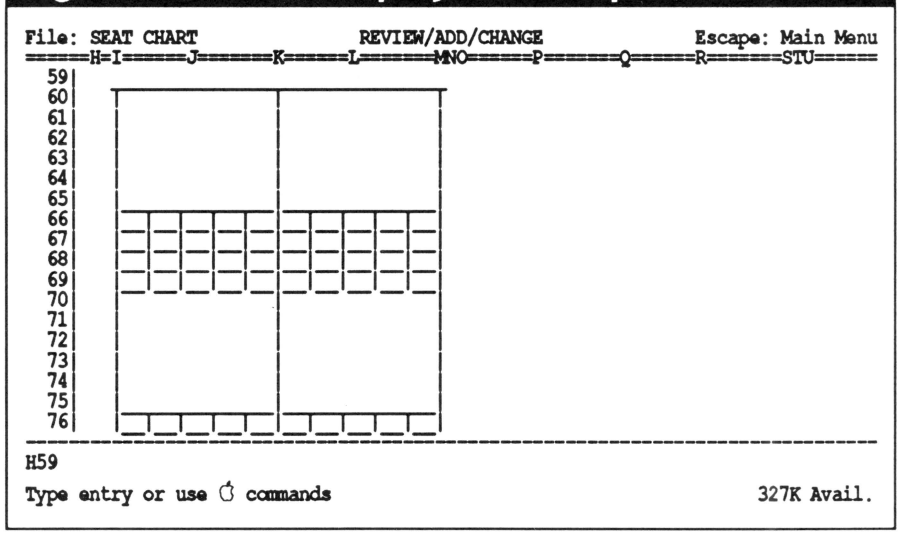
you will make two copies of this block of boxes to complete the seating chart portion of the template. Continue as follows:

14. Put the cursor in cell I59 and copy the block of cells between I59 and M121 to the clipboard.

15. Put the cursor in cell O59 and copy from the clipboard.

16. Put the cursor in cell U59 and once again copy from the clipboard.

Figure 5: Screen Display after Step 12



The LOOKUP Formulas

Now that you defined the structure of all the seats in the classroom, you will enter the LOOKUP formulas that generate the students' names in the seating chart. Since the bottom of the spreadsheet represents the front of the class, you will start entering formulas from the bottom of the template.

You can use the Copy Command and macros to help, but you will find that this is still tedious work.

17. Issue an Apple-Z command so you can see which cells contain formulas and which are blank.

18. Type the formula `@LOOKUP(1,B21...B58)` into cell J116.

19. Type the formula `@LOOKUP(1,D21...D58)` into cell J114.

20. Type the formula `@LOOKUP(1,F21...F58)` into cell J112.

21. Copy cells J112-J116 "within worksheet" into cells J102 through J106. Issue an Apple-N command to specify "No change".

22. Use the Apple-U command and the overstrike cursor to change the "1" to a "2" in the formula in cells J102, J104 and J106. For example, the formula in cell J106 should read `@LOOKUP(2,B21...B58)`.

23. Continue to copy and edit the formulas into the appropriate cells. Use *Figure 2* as a guide for this exercise.

24. Issue an Apple-Z command so the formulas no longer appear on the screen.

Title, Reminder, and Column Headings

25. Follow the model in *Figure 2* and type the title and instructions at the top of the template.

26. Add the column headings in row 20 and center those headings.

Formats and Protection

27. Use the Apple-L command to format the block of cells between I59 and Y121 so all labels are centered.

28. Use the Apple-L command to protect the entire spreadsheet so nothing can be entered anywhere. Then issue another Apple-L and set the protection for cells B22 through B57 to "Values only". Change the protection for cells C22 through C57 to "Labels only". Finally, change the protection for cells E22 through E57 and G22 through G57 to "Labels only".

These changes let you enter student names and seat numbers but keep you from inadvertently changing the format or the formulas in the rest of the template.

Now you can use the template by following the instructions that appear in the first rows of the model.

How It Works

The heart of this template is the LOOKUP statements that copy the students' first, last, and nick-

names into the appropriate cells in the seating chart. For example, consider the formula `@LOOKUP(28,B21..B58)` in cell V85. That formula says:

"Start looking in cells B21 through B58 for a cell containing the number 28. If you find a 28, replace this formula with the contents of the adjacent cell in column C."

The ability to "return" strings of text is a new feature added to version 3.0 of AppleWorks. Earlier versions of AppleWorks could only display numeric results from a "lookup table".

Conclusion

This template from a working professional is a treasure. I'm sure that many teachers will find Mr. Bernstein's spreadsheet seating chart useful; other readers will find valuable applications for similar concepts.

[Stan Hecker is on the administrative staff at Michigan State University, East Lansing, Michigan. He is a partner in H & H Consulting, a Michigan concern specializing in school district financial and population analysis.]

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News and Special Offers

Beagle Bros

Beagle Bros announced the release of version 1.1 of Companion Plus, Mark Munz's collection of valuable AppleWorks 3.0 patches and enhancements. Beagle originally released this disk as version 1.03 but changed the version number after producing a few incomplete copies of the version 1.03 disks. Members who ordered Companion Plus upgrades from **NAUG** received the version 1.1 disk. (The version number appears on the Companion Plus title screen.)

NAUG members who bought Companion Plus from any source can get a free update to version 1.1 from **NAUG**. Return your *original* 3.5-inch *or* 5.25-inch Companion Plus disk and adequate postage to: Companion Plus Disk Update, **NAUG**, Box 87453, Canton, Michigan 48187. We would appreciate, but do not require, a $1 donation to help us recover the cost of this update program. Our thanks to Beagle for supplying the replacement disks.

Owners of the earlier AW3.0 Companion program can upgrade to the current version of Companion Plus by sending their original disk and payment of $23.50 directly to Beagle.

[Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, California 92121; (619) 452-5500.]

JEM Software

JEM Software announced the release of Daniel Lurot's AppleWorks 3.0-to-French Conversion Program which modifies AppleWorks and Time-Out UltraMacros so they use the same command set found in earlier official French localizations of these programs.

The AppleWorks 3.0-to-French Conversion Program, which includes both 3.5 and 5.25-inch disks, costs $45 plus $5 s/h directly from JEM. A one-time site license which lets you modify multiple copies of AppleWorks at a single site costs $225 plus $5 s/h.

[JEM Software, 7578 Lamar Court, Arvada, Colorado 80003. Fax and orders: (303) 422-4856. GEnie: BRANDT.]

How to Use @ROUND

by Cathleen Merritt

Every spreadsheet cell that contains a formula actually generates two numbers. One is the "computed value" that AppleWorks calculates using SANE, the Standard Apple Numeric Environment routines built into AppleWorks. The second is the "displayed value" that you see on the screen. The displayed value consists of the computed value adjusted to meet the formatting criteria you specified for the cell.

Thus, the formula `(10/3)*2` generates a computed value of approximately 6.6666667 and a displayed value of 6.67 (assuming you formatted the cell to display numbers in fixed format with two decimal places).

Figure 1: Computed and Displayed Values

Cell Contents	Computed Value	Displayed Value
C3: 10/3	3.3333333	$3.33
C4: 10/3	3.3333333	$3.33
C5: 10/3	3.3333333	$3.33
C6: @SUM(C3...C5)	9.9999999	$10.00

Figure 2: Values with @ROUND

Cell Contents	Computed Value	Displayed Value
C3: @ROUND(10/3,2)	3.33	$3.33
C4: @ROUND(10/3,2)	3.33	$3.33
C5: @ROUND(10/3,2)	3.33	$3.33
C6: @SUM(C3...C5)	9.99	$9.99

The differences between the computed and displayed values can be troublesome. For example, consider *Figure 1*. Cells C3 through C5 contain a formula that generates the computed value of 3.3333333 and the displayed value of $3.33 (assuming dollar format with two decimal places). Cell C6 contains the sum of the results, which computes to 9.9999999 and displays as $10.00.

Although this is easy to understand and is reasonable, the results of the calculations are a penny "off" from what casual users of this template would expect. For example, a person who earns $10 per hour and who worked three twenty minute (1/3 of an hour) periods received three paychecks of $3.33 each; a total of $9.99, not the $10.00 that shows on the screen.

Whether or not these small differences are important depends on your application. These differences are trivial when you maintain your home budget. They are less trivial to accountants and nuclear physicists.

Fixing the Problem

AppleWorks' @ROUND function addresses this problem by letting you round the underlying computed value to any number of decimal places you specify. For example, `@ROUND(1.2468,2)` says "Round the number 1.2468 to the second decimal place". The formula generates the value 1.25.

If cell A1 contains a 10, the formula `@ROUND(A1/3,2)` generates a computed value of 3.33, which matches the displayed value.

Figure 2 demonstrates how you can use @ROUND to insure that AppleWorks displays the "correct" results.

Syntax of @ROUND

The syntax for @ROUND is `@ROUND(x,y)` where x is a value, formula, or cell reference, and y is the number of decimal places you want to round that number. For example:

Formula	Result
`@ROUND(10/3,3)`	3.333
`@ROUND(A1,2)`	AppleWorks replaces this formula with the value in cell A1 rounded to two decimal places.
`@ROUND(@AVG(A1...C1),2)`	AppleWorks replaces this formula with the average of cells A1 through C1 rounded to two decimal places.

Doing More with @ROUND

Most of us use AppleWorks' @ROUND function to round spreadsheet numbers to the nearest whole, tenth, or hundredth. But did you know that you can use @ROUND to round entries to the nearest ten or hundred?

The trick is to enter a negative value for the number of places you want to round. For example, `@ROUND(233,-2)` rounds to the nearest hundred and yields the number 200. `@ROUND(233,-1)` rounds to the nearest ten and yields a result of 230.

The formula `@ROUND((A1*4),-2)/4` rounds numbers to the nearest 25. That formula displays "125" if cell A1 contains 137 and "150" if cell A1 contains 138.

A little effort lets you round prices to the nearest 25 cents. For example

```
@ROUND((A1-@INT(A1))*400,-2)/400+@INT(A1)
```

yields "8.25" if cell A1 contains 8.37 and "8.50" if cell A1 contains 8.38. — *Ed Jones*

You should use @ROUND in any calculation or formula that is referenced by any other formula. For example, *Figure 2* uses @ROUND in cells C3 through C5 because those cells contain calculated values used in later calculations. It does not use @ROUND in cell C6 because you will not use that cell as the basis for further calculations.

Overcoming the limitations of SANE

As indicated earlier, AppleWorks uses Apple's SANE routines for all its arithmetic operations.

Richard Engle's definitive article about SANE (see ***The AppleWorks Handbook: Volume Two***) explains that SANE can only perform precise calculations on decimal numbers whose components to the right of the decimal is the sum of the powers of two (e.g., 1/2, 3/4, and 13/16). All other decimal numbers are approximated. Engle indicates that you can overcome this limitation in precision by always testing for a range instead of for a specific value. For example, he suggests that you use the formula `@IF(@ABS(A2-A3)<.0001,1,0)` to test for identical values in cells A2 and A3 instead of testing for an exact match with the formula `@IF(A2=A3,1,0)`.

Although not mentioned by Engle, the @ROUND function reduces the problems with SANE. Rounding all decimal number calculations to the number of places that appear on the screen assures that the underlying calculated value corresponds to the number that appears on your display. Thus, you can generally use the formula `@IF(A2=A3,1,0)` to test for an exact match if you first round the calculated values in cells A2 and A3 to match the number on the screen.

Conclusion

As you can see, @ROUND adds important flexibility to AppleWorks. Using @ROUND in every cell that contains a calculation or formula assures that you will get the results you expect when you refer to those cells elsewhere in your template.

*[Ed: For more information about SANE and how AppleWorks calculates numbers, see the articles entitled "How AppleWorks Handles Arithmetic Operations" (**AppleWorks Handbook: Volume Two**), "The Standard Apple Numeric Environment" (**AppleWorks Forum**, December 1990), and "How AppleWorks Organizes Its Spreadsheet Data" (**AppleWorks Forum**, January 1991).]*

*[Cathleen Merritt is the Director of **NAUG** and is the Editor of the **AppleWorks Forum**.]*

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How to Use an Extended Keyboard with AppleWorks

by William C. Roemer

The standard Apple IIGS keyboard is well designed, convenient, and comfortable, but lacks the special function keys included on the extended keyboards available for Macintosh computers. Fortunately, the Apple IIGS supports the same Apple Desktop Bus (ADB) used in all current-model Macintosh computers. As a result, you can use any Macintosh keyboard with your Apple IIGS.

Although it is easy to replace the IIGS keyboard with an extended model, Apple II software does not automatically recognize the 21 function keys (labeled F1 through F15, Help, Home, Page Up, Del, End, and Page Down) on the keyboard. This article describes how AppleWorks owners can use TimeOut UltraMacros to program those keys for their own purposes.

Some Background

Every keyboard offers two types of keys: Character keys and modifier keys. Character keys generate ASCII characters. For example, the "a" key is a character key; pressing that key generates an ASCII code of 97 which prints the letter "a" on the screen.

The Shift, Caps Lock, Open-Apple, Solid-Apple (Option), and Control Keys are modifier keys. Instead of generating ASCII codes, these keys modify the code produced by the character keys. For example, holding the Shift Key and pressing the letter "a" generates an ASCII code of 65 and prints an upper case "A" on the screen.

The F1 through F15 and the Help, Home, Page Up/Down, Del, and End keys are hybrids that work like modified character keys. For example, the F1 Key generates the ASCII code normally produced by a <sa-z> keystroke combination. The Del Key generates a <sa-u>. The table in *Figure 1* lists the Solid-Apple Key equivalent for each function key.

Figure 1: Solid-Apple Key Generated by Each Function Key

Function Key	Solid-Apple Key Equivalent
F1 (undo)	z
F2 (cut)	x
F3 (copy)	c
F4 (paste)	v
F5	`
F6	a
F7	b
F8	d
F9	e
F10	m
F11	g
F12	o
F13 (print screen)	i
F14 (scroll lock)	k
F15 (pause)	q
HELP	r
HOME	s
PAGE UP	t
DEL	u
END	w
PAGE DOWN	y

Since these keys generate the same codes produced by Solid-Apple Key combinations, you can use the function keys to launch macros.

There is nothing special about the macros that work with the function keys; they are identical to the macros you have been writing and using for years. In fact, you can use your existing macros with the function keys. For example, a press of the F1 Key will launch your <sa-z> macro; F2 will launch your <sa-x> macro and so forth.

Remembering Your Macros

With so many keys available, it can become difficult to remember the macros you assign to each

Figure 2: Macros for the Extended Keyboard

```
Z:<all><oa-M>T<oa-9 rtn left>!                          { F1 Undo: Delete file in all modules.          }
X:<all oa-M>T<input rtn>!                               { F2 Cut: Move to the clipboard.                }
C:<all oa-C>T<input rtn>!                               { F3 Copy: Copy to the clipboard.               }
V:<all oa-c>F<rtn>!                                     { F4 Paste: Move from the clipboard.            }
I:<all oa-H>!                                           { F13 Print Screen: Print the screen.           }
R:<all oa-?>!                                           { Help: Display AppleWorks' Help Menu.          }
S:<all oa-1>!                                           { Home: Move to first line or record.           }
T:<all><oa-up oa-up down>!                              { Page Up: Move to previous page.               }
U:<awp><right oa-left oa-M>T<oa-right left rtn>!        { Del: Delete a word.                           }
U:<adb><zoom oa-D>Y<esc>!                               { Del: Delete a record.                         }
U:<asp><oa-D>R<rtn>!                                    { Del: Delete a row.                            }
W:<all><oa-9>!                                          { End: Move to last line or record.             }
Y:<all><oa-down oa-down up>!                            { Page Down: Move forward a page.               }
K:<awp><goto sa-?>!                                     { F14: Launch spell check/print routines.       }
Q:<all oa-q esc>6<rtn>!                                 { F15 Pause: Quit with Blister Quit.            }

?:<awp><Y = 6 : begin : msgxy Ø, Y : msg %B% : Y = Y + 1 : if Y < 14 then rpt : endif : Y = 7 : begin :
msgxy 23, Y : msg "|" : Y = Y + 1 : if Y < 13 then rpt : endif : X = 24 : begin : msgxy X, 12 : msg "_" : X
= X + 1 : if X < 53 then rpt : endif : Y = 12 : begin : msgxy 53, Y : msg "|" : Y = Y - 1 : if Y > 6 then
rpt : endif : X = 52 : begin : msgxy X, 6 : msg "_" : X = X - 1 : if X > 23 then rpt : endif : goto sa-\>!

\:<awp><msgxy 26, 9 : msg "Has this Document been" : msgxy 26, 1Ø : msg "checked for Spelling? Y/N" : bell
: K = key : if K = 78 or K = 11Ø goto sa-J : else : if K = 89 or K = 121 goto sa-H>!

J:<awp><$Ø = "Quickspell" : oa-esc sa-ctrl-Q : if Z = Ø then msg $Ø + " not found" : bell : stop : endif :
rtn>!

H:<awp><oa-P rtn $Ø = "Epson FX-8Ø" : find : rtn input : rtn>!

<ctrl-q>:<all><y = peek 7786 * 256 + peek 7785 : begin : sa-ctrl-z : if z = Ø then tab x = peek 7786 * 256
+ peek 7785 : ifnot x = y then rpt>!

<ctrl-z>:<all><z = Ø : find : z = 1>!
```

Disadvantages of Extended Keyboards

There are at least three disadvantages to using an extended Macintosh keyboard with an Apple IIGS. First, extended keyboards are larger and take up significantly more desk space. Second, the indicator lights for the Num Lock, Caps Lock, and Scroll Lock keys do not work when connected to a IIGS. Finally, the Num Lock, Clear, Home, Pg Up, End, Pg Dn, Del and the Left, Right, Up, and Down Arrow Keys on the numeric keypad do not perform their designated functions when connected to a IIGS. However, the number keys, Plus, Minus, Times, Divide, and Enter Keys on the numeric keypad work as they should. All the keys that do not work are duplicated elsewhere on the keyboard.

key. I suggest that you program the labeled keys (F1 (Undo), F2 (Cut), F3 (Copy), F4 (Paste), F13 (Print Scrn), Help, Home, Page Up, Del, End, and Page Down) to perform as labeled.

For example, the F1 Key is labeled "Undo", so I use this key to call a macro that "undoes" my work; it deletes all my work from the current cursor position to the end of a word processor document.

I use the Del Key to delete a word in a word processor document, a record in the data base, or a row in the spreadsheet.

The table in *Figure 2* presents the macros I assign to each labeled function key. *[Ed: This month's issue of **NAUG on Disk** includes a file you can compile to install these macros.]*

There are no corresponding AppleWorks functions for the F14 (Scroll Lock) and F15 (Pause) keys. I use F14 to check the spelling and print a document. (That key calls macro <sa-k> which in turn calls <sa-?>, <sa-\>, <sa-J>, and <sa-H>. Since I use TimeOut QuickSpell as my spelling checker and

my printer is an HP DeskJet Plus with an Epson emulator cartridge, you will have to modify the <sa-J> and <sa-H> macros for your system.)

I use the F15 Key to quit AppleWorks. Since the F15 Key generates a <sa-q>, it calls the <sa-q> macro I wrote to quit AppleWorks even before I had this keyboard. *[Ed: The author's <sa-q> macro assumes that you use Blister Quit, John Link's patch that modifies AppleWorks so it quits without clearing memory. Mr. Link described this patch in his article entitled "Patches that Enhance AppleWorks 3.0" in the February 1990 issue of the* ***AppleWorks Forum****. Do-it-yourselfers can follow the step-by-step directions that appear in Mr. Link's article. Others can install the patch with SuperPatch, Mr. Link's excellent program that installs more than 150 patches in AppleWorks 3.0.]*

Developing a system that makes it easy to remember the macros you assign to the non-labeled function keys is problematical. I know the ASCII character generated by each function key, so I programmed macros that relate to those characters. For example, I programmed F6 (which generates a <sa-a>) to add files to the desktop, and F9 (which generates a <sa-e>) to address an envelope. You can prepare a list or a keyboard template to help you remember the keystrokes that launch each macro. *[Ed: See the sidebar entitled "Prepare a Keyboard Template" for some ideas that help with this task.]*

Programming the Numeric Keypad

Apple IIGS owners can also write single-keystroke macros that respond to the keys on the IIGS numeric keypad. This technique works with both Apple IIGS and Macintosh keyboards.

The trick is to change the normal memory value associated with the key on the numeric keypad to a zero. Then the key no longer prints a normal keystroke but instead calls the macro defined by the ASCII character associated with that key. *Figure 3* presents the memory locations and the contents of those locations for each numeric keypad key.

The easiest way to change the numeric keypad is with a macro. For example, *Figure 3* indicates that the memory location for the number 1 and number 2 keys are $DØ39 and $DØ3A respectively. Consequently, the macro that activates the number 1 and number 2 keys is

```
?:<all><poke $DØ39,Ø : poke $DØ3A,Ø>!
```

Launching this macro when you start AppleWorks lets you use the "1" and "2" keys on the numeric

Figure 3: Memory Table for the Numeric Keypad

Key	Normal Value	Memory Location
Enter (Rtn)	$8D	$DØ31
Ctrl-X (Clear)	$98	$DØ32
*	$AA	$DØ33
+	$AB	$DØ34
-	$AD	$DØ35
.	$AE	$DØ36
/	$AF	$DØ37
Ø	$BØ	$DØ38
1	$B1	$DØ39
2	$B2	$DØ3A
3	$B3	$DØ3B
4	$B4	$DØ3C
5	$B5	$DØ3D
6	$B6	$DØ3E
7	$B7	$DØ3F
8	$B8	$DØ4Ø
9	$B9	$DØ41
=	$BD	$DØ42

Which Keyboard Should You Buy?

Apple IIGS owners who want to use an extended keyboard have many options; all Macintosh keyboards work with an Apple IIGS. In addition, the special keys on these keyboards all generate the same ASCII values listed in *Figure 1*. Thus, you can choose any keyboard advertised in MacWorld, MacUser, MacWeek, or any other Macintosh publication.

Apple Computer produces the Apple Extended Keyboard, which lists for $229 and is available from Apple dealers.

However, my favorite keyboard is the "MacPro" by Keytronic, which lists for $149 but is available at significant discounts from mail order dealers. The MacPro has a nice "feel", features oversized Delete and Return Keys, and has Control, Option (Solid-Apple), and Command (Open-Apple) Keys on both sides of the Space Bar. I find the double set of Apple Keys convenient when I want to invoke commands and macros that use these keys.

Prepare a Keyboard Template

Now that you programmed all the keys on the extended keyboard, how can you remember what every key does in each module? I use a keyboard template that labels the function assigned to each key.

Most extended keyboards have an unused area between the keys and the outside of the keyboard case. You can use poster board and an Xacto knife to cut a small template that fits your keyboard.

Rather than writing on the template, write on removable labels you can buy from an office supply store. Then you can re-define the keys and change the labels without destroying the template. Apply your labels to the template and not directly to the keys.

Exploring the Extended Keyboard

The easiest way to explore an extended keyboard is with Randy Brandt's ASCII Values, a TimeOut application on the PowerTools disk. You launch ASCII Values from the TimeOut Menu, then press any key or key combination on a standard or extended keyboard. ASCII Values displays the decimal, hexadecimal, and binary values, and the character that appears on the screen for the key you pressed. Since ASCII Values is a TimeOut application, the program lets you explore the keyboard from within AppleWorks.

keypad to invoke macros. Obviously, you can expand this macro to activate all the keys on the keypad and can call a macro with any key you activate.

You must also remember to restore the keys to their normal values before you leave AppleWorks. *Figure 3* indicates that the normal values for the number 1 and 2 keys are $B1 and $B2 respectively, hence the easiest way to restore these keys is with the macro

```
[:<all><poke $DØ39,$B1 : poke $DØ3A,$B2>!
```

You can modify the <sa-q> (Quit) macro in *Figure 2* so it restores the keys to their normal function before you quit AppleWorks.

[The author thanks Randy Brandt for providing the memory addresses necessary to develop the single keystroke macros for the numeric keypad.]

[William C. Roemer is an attorney practicing in New Jersey and is also admitted to the Bar in the District of Columbia.]

New Disks in the NAUG Library

AppleWorks Footnote System

The **NAUG** Public Domain Library now includes an enhanced version of Stan Hecker's popular AppleWorks Footnote System, a set of macros that make it easy to add footnotes to AppleWorks. Version 3.2 of the AppleWorks Footnote System, which is compatible with most AppleWorks patching programs, adds a menu that lets you choose the final format of your document, offers a pop-up help screen, provides better error-prevention, file-handling, and documentation, and operates faster than earlier versions. This disk is a "must" for anyone who writes academic or legal papers that require footnotes.

AppleWorks Footnote System 3.2 requires AppleWorks 3.0 enhanced with UltraMacros 3.1 or later. Owners of earlier versions of AppleWorks should use version 3.0 of the Footnote System which is also on the disk.

Computer Terms

Computer Terms contains definitions for more than 1,000 computer-related words classified into 14 categories including AppleWorks, BASIC, Data Base, Graphics, Networks, Publish It!, and System Tools. The terms and definitions appear in a data base file with 16 custom reports that print the terms and definitions for different topic areas. Users can also create report formats that prepare AppleWorks and QuickSpell-compatible dictionaries for topics you specify.

Computer Terms requires AppleWorks 3.0 and at least 130K of AppleWorks desktop memory. Our thanks to **NAUG** member Barry Saylor for developing the Computer Terms Disk and contributing the disk to **NAUG**'s Public Domain Library.

All disks are available in both 5.25-inch ($4) and 3.5-inch ($6) format, plus $2 s/h *per order*. Order from Public Domain Library, **NAUG**, Box 87453, Canton, Michigan 48187; (313) 454-1115. **NAUG** accepts Visa and MasterCard. All **NAUG** disks are also available for downloading from **NAUG**'s electronic bulletin board, the Electronic Forum, and from the **NAUG** areas on CompuServe, America Online, and GEnie.

How to Use UltraMacros' <read> Command

by Steve Beville

An article in the January issue of the ***AppleWorks Forum*** describes how to use UltraMacros' <cell> command to read the current word processor line, data base entry, or spreadsheet cell into variable $Ø. You can use <cell> in your macros or invoke the command with an <oa--> keypress.

UltraMacros also offers a <read> command that reads the character under the cursor into variable $Ø. You can access this command from the keyboard by pressing <oa-^> (remember to hold down the Shift Key when you type this command). That keystroke combination reads the character under the cursor into $Ø and advances the cursor to the next character. Thus, you can read a word or phrase into $Ø by holding down <oa-^> until the overstrike cursor moves one space beyond the desired text.

<oa-^> can store up to 79 characters in $Ø; if you try to store more characters, UltraMacros will beep. You must then reset variable $Ø before UltraMacros will accept more data.

To reset $Ø, move the cursor to the position where you want to put the contents of $Ø and enter a <sa-Ø>. That enters the characters into the file but does not clear $Ø; you can put the stored characters in a second location by moving the cursor and entering another <sa-Ø>. However, once you issue a <sa-Ø>, the next <oa-^> keystroke automatically clears $Ø.

You can also use the <cell> command to reset variable $Ø. The technique involves using <cell> to enter an empty string into that variable and then issuing a <sa-Ø> to print the "empty string". The next <read> command will start storing new data in that variable.

Specifically, you enter an empty string by placing the cursor on a blank word processor line, an empty data base category, or an empty spreadsheet cell and issuing an <oa-->. Then you enter a <sa-Ø> to "print" the contents of variable $Ø. Since $Ø is empty, the print command does nothing but clear $Ø for the next read; the next <read> command will start storing new data in variable $Ø.

An Example

Imagine this example: You just used <oa-^> to read the first three words of the above paragraph into $Ø. Therefore, $Ø contains "Specifically, you enter". You then move the cursor to the first line of this paragraph and hold down <oa-^> until the cursor moves beyond the third word. Then issue a <sa-Ø>. The screen will display "Specifically, you enter-Imagine this example:"; the contents of $Ø. You can use this feature to capture non-contiguous text from different areas of a file or from different files.

Remember to reactivate the insert cursor with <oa-E> or you risk overwriting some data when you use <sa-Ø> to "print" the contents of $Ø.

Using <read> in the Different Modules

Word Processor: You must always zoom out (hide the printer options and Return "blots") before using <read> in the word processor module. <read> interprets Carriage Return "blots" as Delete Commands; reading a Return character causes the cursor to reverse direction and start deleting text. You can use <zoom> (<oa-@>) to insure that you are zoomed out.

Data Base: AppleWorks' data base module interprets the <read> command as an indicator that you want to change the data in a record. (When you enter an <oa-^> in a data base, the message in the upper right-hand corner of the screen changes to "Escape: Restore former entry".) Thus, you should press the Escape Key instead of the Return Key

after you read the information from a category into $Ø. When you press the Escape Key, AppleWorks "restores" the former entry (even though you didn't change anything), and leaves the file status byte unchanged. Pressing Return will change the status of a "saved" or "unchanged" file to "changed" because AppleWorks thinks you made changes to the file.

Spreadsheet: <read> stores characters from the Edit Line at the bottom of the spreadsheet screen into variable $Ø. Remember to issue an <oa-U> to put the contents of the cell on the Edit Line before starting to read the entry. Also issue an <esc> to clear the Edit Line before continuing with your macro.

Uses for <read>

Word Processor: <read> lets you copy a word or phrase to another location within the file or to another file. The receiving file can be a word processor, data base, or spreadsheet file. That eliminates the need to copy text to and from the clipboard.

Data Base: <read> lets you copy a data base entry or part of an entry into another category or another file. <read> also lets you concatenate several category entries or portions of entries into one string and transfer that information within the file or to other files.

Spreadsheet: <read> lets you copy a formula or a portion of a formula or a label to another cell in the current file or another file.

Advantages

The question remains: Why use <read> when AppleWorks makes it so easy to transfer data within and between files?

The primary advantage of <read> is its speed. UltraMacros is always memory resident, even on a 128K system. Unlike <oa-C> or <oa-M>, <cell> and <read> never require a disk access and never display the "Place the disk containing..." before you can continue your work.

[Steve Beville is an AppleWorks consultant from Spartanburg, South Carolina. Some of Mr. Beville's macros appear on Beagle Bros MacroEase disk.]

News and Special Offers

FrankSoft Publishing

FrankSoft Publishing recently released AA.RT ("Asset Analysis Retirement Template"), a template that monitors the annual growth of your pension and retirement funds.

AA.RT, which you install within the company's Asset Analysis template, computes quarterly and yearly, current and previous year net values, profits, gains, taxable and non-taxable additions, total contributions, and other retirement information. Instructions appear in a word processor file on the disk. (A description of Asset Analysis appears on page 18 of the January 1991 issue of the ***AppleWorks Forum***.)

AA.RT lists for $16. Until December 1, **NAUG** members can buy AA.RT directly from the developer for $10, postpaid. AA.RT requires Asset Analysis E2.1.1 (3.5-inch disk) or V2.1.1 (5.25-inch disk). FrankSoft accepts Visa and MasterCard and maintains a "satisfaction guaranteed or your money back" policy. *[FrankSoft Publishing, 3300 33rd Avenue Court, Rock Island, Illinois 61201; (309) 788-7663; Fax: (309) 788-7664.]*

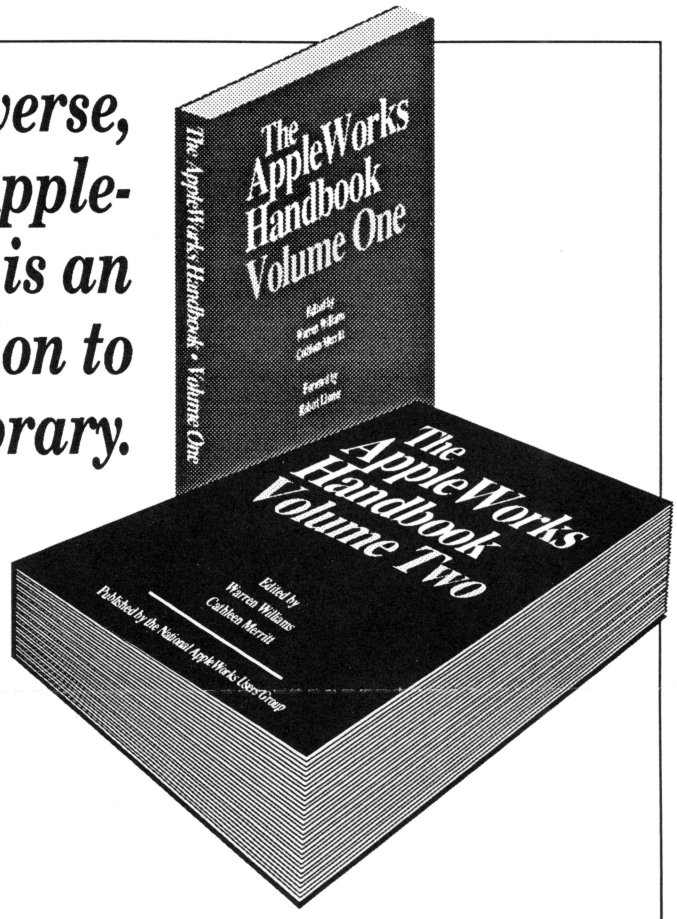
Steve Beville

Steve Beville recently announced the release of DB.Link 4.0, an enhanced version of DB.Link 3.1 which he developed for TimeOut MacroEase.

DB.Link 4.0 lets you create long notes or entries for data base records by linking individual records to an AppleWorks word processor, data base, or spreadsheet file. The macros in DB.Link can find the linked file on the desktop, another desktop if you have Triple Desktop, or can load the file from disk. You can toggle back and forth between the two files with a single command. DB.Link 4.0 includes disk-based documentation and sample files.

DB.Link 4.0 lists for $15 plus $2 s/h. **NAUG** members can buy the package directly from the author for $10 plus $2 s/h. (Canadian members add $1; overseas members add $3.) DB.Link 4.0 requires AppleWorks 3.0, patched with the AppleWorks 3.0 Patch Disk 1.5 or later, and UltraMacros 3.1. *[Steve Beville; 3392 Glenn Springs Road; Spartanburg, South Carolina 29302; (803) 582-3687.]*

Comprehensive, diverse, and accessible. The AppleWorks Handbook is an outstanding addition to your AppleWorks library.



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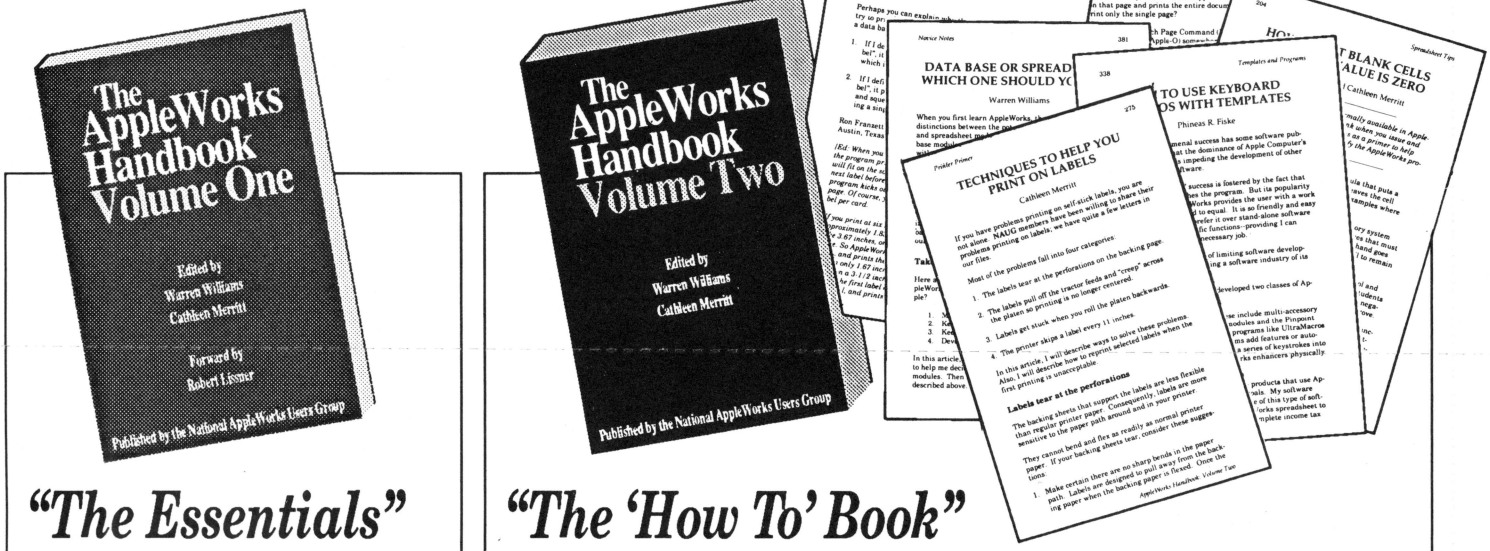

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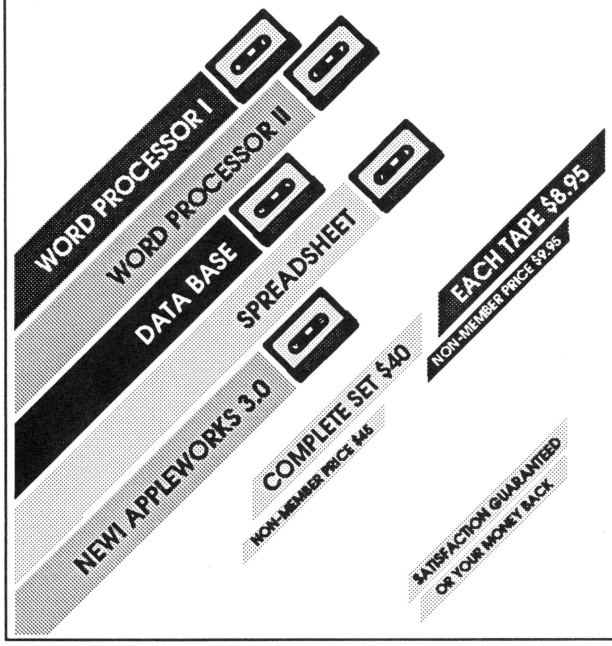

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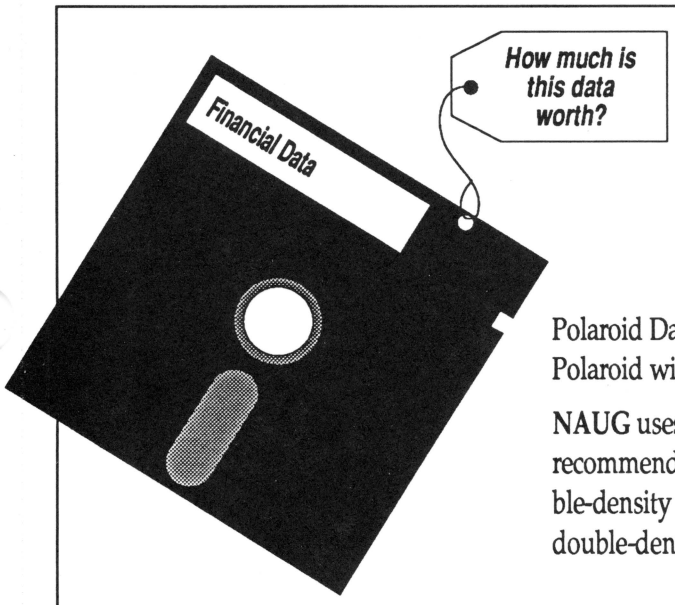

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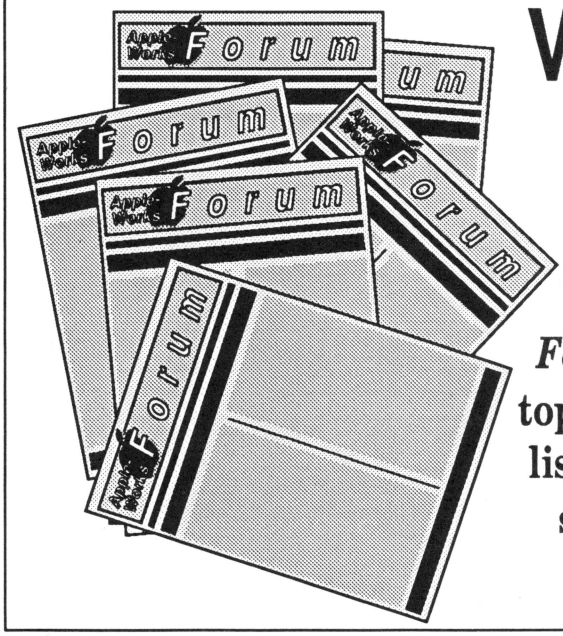

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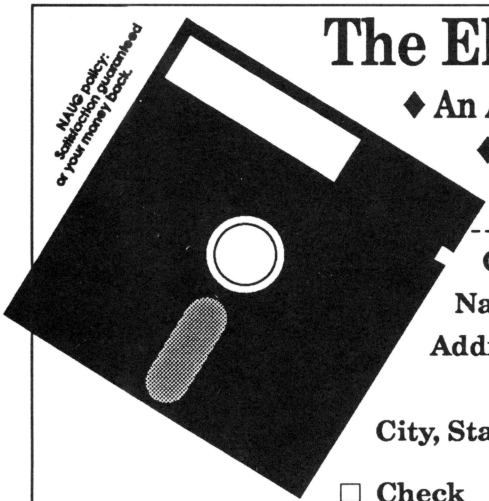

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Understanding SEG.PR and SEG.ER – Part 3

by John Link

This is the last of three articles that describe how AppleWorks controls the output from your printer. This month, Mr. Link describes how AppleWorks produces proportional printing and full justification. He also suggests ways to enhance the output from Epson printers.

The quality of your AppleWorks printouts depends on both the mechanical and electronic properties of your printer. ImageWriter owners are generally pleased with the appearance of their fully justified AppleWorks documents. Owners of Epson dot matrix printers are often dissatisfied with their justified output. (*Figure 1* contains examples of justified ImageWriter and Epson printouts.) *[Ed: All comments in this article about Epson printers also apply to Epson-compatible units.]*

Figure 1: Justified Output

Figure 1A: ImageWriter Output

```
Four score and seven year ago, our forefathers
brought forth to this continent a new nation
conceived in liberty and dedicated to the
proposition that all men are created equal.  We
are now engaged in a great civil war, testing
that that nation, or any nation, so conceived and
so dedicated can long endure.
```

Figure 1B: Epson Output

```
Four score and  seven year  ago, our  forefathers
brought forth  to  this continent  a  new  nation
conceived  in  liberty  and  dedicated  to  the
proposition that all men  are created equal.  We
are now  engaged in  a great  civil war,  testing
that that nation, or any nation, so conceived and
so dedicated can long endure.
```

It is tempting to attribute the differences in output to AppleWorks, particularly since TimeOut SuperFonts and Publish It! produce excellent, proportionally spaced, fully justified results from both ImageWriter and Epson printers (see *Figure 2*). However, SuperFonts and Publish It! generate high quality output by printing each page as a rasterized graphic image. Users can attest to both the quality of the result and the slowness of the process.

By comparison, AppleWorks uses the standard ASCII character set and commands built into the printer. That approach is significantly faster than the dot-by-dot system used by SuperFonts and Publish It!, but limits AppleWorks to the commands recognized by the ROM in the printer.

As I will explain later, all of Apple's dot matrix and daisy wheel printers (except the Silentype and short-lived Scribe) recognize sophisticated formatting commands that are not recognized by Epson printers. These differences let AppleWorks generate significantly better justified output from the Apple printers.

Figure 2: SuperFonts Output

Figure 2A: ImageWriter Output

Four score and seven year ago, our forefathers brought forth to this continent a new nation conceived in liberty and dedicated to the proposition that all men are created equal. We are now engaged in a great civil war, testing that that nation, or any nation, so conceived and so dedicated can long endure.

Figure 2B: Epson Output

Four score and seven year ago, our forefathers brought forth to this continent a new nation conceived in liberty and dedicated to the proposition that all men are created equal. We are now engaged in a great civil war, testing that that nation, or any nation, so conceived and so dedicated can long endure.

Problems with Full Justification

AppleWorks uses a three step process to justify the margins in a document. First, it determines where it must generate a linefeed command to end the line without overrunning the right margin. (This step also occurs when you print with a ragged right margin.) Second, it calculates whether the last character on the line will fall at the precise edge of the right margin. Finally, AppleWorks adds any blank space that might be necessary to force that character to print at the right margin.

The quality of the fully justified output depends on two factors:

1. How closely the last character lines up with the right margin. (The right edge of the last character on every line should line up exactly at the right margin.)
2. How evenly AppleWorks distributes the extra space across the line. (The more evenly it distributes the blank space, the more attractive the output.)

The first criteria is the most important and is the easiest to evaluate. If the right margin does not line up, the "justified" output is not truly justified and is unacceptable. ImageWriter, Apple Dot Matrix, and Apple Daisy Wheel printers pass this test and produce even right margins when printing in both proportional and monospaced modes. Epson printers pass the test when using a monospaced typeface, but do not even attempt to justify the right margin in proportional mode.

The differences between the ImageWriter and Epson output is attributable to differences in the commands recognized by these printers.

ImageWriters support a command that lets AppleWorks add small amounts of extra space between words. Lissner calls this feature "fractional justification".

Epson printers do not offer fractional justification, so AppleWorks aligns the right margin by putting an extra space between some words on the line when it prints in monospaced mode. Although that is acceptable for many users, others find the wide and uneven inter-word spacing unattractive and unacceptable. Those users avoid using full justification for monospaced output with Epson printers.

Things would be worse if AppleWorks tried to print fully justified proportional text on Epson printers. Individual Epson proportional characters vary in width from 5/120ths to 12/120ths of an inch in increments of 1/120th of an inch. Thus, the amount of space required to right justify a line is often not an exact number of whole spaces. Since AppleWorks could not line up the right margin, the program does not try to justify proportional output from these printers. That is, although AppleWorks accepts both the Justified and Proportional Commands, it produces proportionally spaced, *un*justified output on Epson printers.

Proportional Type

AppleWorks stores the size of the proportional characters in tables within SEG.PR. The program includes proportional tables for the printers listed in *Figure 3*; it does not support proportional spacing with other printers. (Remember that support for proportional type is separate from support for fractional justification. The Epson FX, for instance, supports one but not the other.)

These tables tell AppleWorks how much horizontal space to allocate for each printable character in the proportional font generated by that printer. AppleWorks copies the appropriate table into SEG.ER when you add that printer to the Printer Menu.

When you issue a Print Command, AppleWorks adds up all the fractions of an inch in each character (including spaces) and uses that data to determine where to insert a linefeed command to start the next line of text. AppleWorks also uses the result to determine how much blank space to add to the line when printing with full justification. Distributing the extra space across the line evenly, and calculating the exact constant to send with each of the many horizontal motion commands that will achieve that spacing, is a more complex process.

The printer definition in SEG.PR tells AppleWorks if the printer offers proportional type and which proportional table defines the horizontal spacing for its proportional characters. SEG.PR also tells AppleWorks how to interpret the data in the tables. For example, the Epson FX and Apple Daisy Wheel printers use units of 1/120th of an inch; ImageWriters use the data in 1/144ths of an inch units for P-2 and 1/160ths for P-1. (AppleWorks reserves only one byte for the denominator of the character width, and thus assumes that no printer is capable of resolving horizontal placement to an accuracy greater than 1/255th of an inch. *[Ed: You can store up to 256 combinations of bits in a single byte.]*)

LaserWriter Printers

LaserWriter printers offer 300 dots per inch (dpi) resolution, which is beyond the 255 dpi capability supported by AppleWorks. SuperTalk and Apple's ImageWriter emulator use the PostScript language

How the ImageWriter Works

ImageWriter printers support a text mode formatting command (Escape F nnnn, where "nnnn" is the number of 1/144ths to move in from the left margin) that moves the print head horizontally across the page in very small increments. Since each character in the ImageWriter proportional font uses an exact number of 1/144ths of an inch horizontally, the ImageWriter's horizontal motion command yields excellent output from programs such as AppleWorks that are "smart" enough to use it. The ImageWriter's support for fractional justification lets AppleWorks distribute the blank space needed for right justification more evenly across the line.

AppleWorks' ImageWriter driver issues "Escape F nnnn" commands many times in each justified line of text, usually at the beginning of each word. That spreads the extra blank space as evenly as possible across the entire line, by dividing it evenly among all the spaces between words. Other printers (e.g., the Qume Sprint 5 and Apple Daisy Wheel), issue these commands differently, but generate similar results.

AppleWorks must also know the syntax for the horizontal spacing command and the algorithms necessary to use it. Some Epson FX-compatibles (the Star NX-10, for example) support horizontal spacing commands, but AppleWorks does not know how to use them. Output from these printers is exactly the same as that produced by an Epson FX.

AppleWorks stores resources for using horizontal motion commands in SEG.WP, not SEG.PR or SEG.ER. However, SEG.PR contains a Boolean switch that changes from 0 to 1 to tell AppleWorks that the printer supports fractional justification.

AppleWorks recognizes that the following printers are capable of fractional justification:

Apple Daisy Wheel
Apple Dot Matrix
ImageWriter I
ImageWriter II
ImageWriter LQ
Qume Sprint 5
Qume Sprint 11
Any PostScript printer (SuperPatch required for best results)

The program only supports fractional justification with printers that are fully compatible with those on this list.

Figure 3: Printers that Support Proportional Type

Apple Daisy Wheel	ImageWriter LQ
Apple Dot Matrix	Juki 5500 series
DeskJet 500 (SuperPatch required)	Panasonic 1080, 1090, 1091, 1092
Epson FX	Qume Sprint 5
ImageWriter I	Qume Sprint 11
ImageWriter II	

Any PostScript printer (SuperPatch required for best results)

Figure 4: AppleWorks Output from a LaserWriter

Four score and seven years ago, our forefathers brought forth to this continent a new **nation** conceived in liberty and dedicated to the proposition that all men are created equal. We are now engaged in a great civil war, testing that that nation, or any nation, so *conceived* and so dedicated can long endure.

Enhancing Epson Boldface

Epson printers can produce three different types of boldface output: double strike, emphasized, or emphasized double strike.

The Epson driver in SEG.PR implements boldface by sending Escape G (Double Strike On) and Escape H (Double Strike Off) commands. You might prefer the output you get by substituting Escape E (Emphasized On) and (Escape F) (Emphasized Off) commands, or Escape G Escape E (Emphasized Double Strike On) and Escape H Escape F (Emphasized Double Strike Off) for the boldface begin/end commands. Version 3.0 of AppleWorks lets you edit the boldface commands after you install the Epson driver into SEG.ER. Owners of earlier version of AppleWorks can use the AppleWorks Printer Code Editor available from NAUG's Public Domain Library to make these changes.

in the LaserWriter to overcome AppleWorks' 255 dpi limitation. *[Ed: SuperTalk , which comes with SuperPatch 8.0, is John Link's powerful LaserWriter driver for AppleWorks.]* The PostScript interpreter in these printers mathematically converts AppleWorks' horizontal placement commands to take advantage of the higher resolution supported by the LaserWriter. Because the proportional fonts in the LaserWriter do not use the same horizontal space as those in an ImageWriter, the Apple emulator can generate unacceptable results, especially in proportional-1 mode.

SuperTalk is more accurate than Apple's ImageWriter emulator because SuperTalk uses PostScript to precisely measure every character in four of the LaserWriter's built-in fonts (you can choose either the Times or Helvetica families) and then calculate how many 1/7,000,000ths of an inch each character deviates from the ImageWriter's 1/144th of an inch spacing. SuperTalk then creates a new character that matches the 1/144th of an inch scheme supported by AppleWorks and stores the character in the LaserWriter memory for use with AppleWorks. Finally, SuperPatch installs a proportional table in AppleWorks that exactly matches the spacing of the characters created by SuperTalk.

SuperTalk processes more than a thousand characters and lets a SuperPatched copy of AppleWorks resolve fully justified right margins to the nearest 1/7,000,000th of an inch when printing on a LaserWriter. (These calculations are why it takes almost two minutes for SuperTalk to download into a LaserWriter Plus.)

Figure 4 presents a sample of AppleWorks output printed on a LaserWriter with SuperTalk.

DeskJet printers, which also offer 300 dpi resolution, do not support a language that can make these mathematical transformations. The DeskJet 500 driver included with SuperPatch uses proprietary techniques to work around AppleWorks' 255 dpi limitation. This work-around produces results that are better than Apple's emulator on a LaserWriter, but not nearly as accurate as SuperTalk on that same LaserWriter.

The DeskJet 500's built-in proportional font is well designed and produces attractive documents if you can accept a ragged right margin. Fully justified proportional output from the DeskJet resembles that from the Epson FX and is generally unacceptable even with SuperPatch.

Printer Commands by Module

Last month's article described how the AppleWorks modules use the different printer commands. As you will recall, some commands are used by all the AppleWorks modules; others are used only by the word processor.

Here is a list of the printer commands that work in each module. The first three commands are common to all modules, the rest are not.

Word Processor

Interface initialization string
Character per inch settings
Lines per inch settings
Six Special Codes
Word processor initialization codes
Word processor reset codes
Proportional typeface
Fractional justification
Boldface on and off
Underline on and off
Subscript on and off
Superscript on and off

Data Base and Spreadsheet

Interface initialization string
Character per inch settings
Lines per inch settings
Special codes in specific reports

Conclusion

As you can see, it is tempting to ascribe the shortcomings in your printouts to AppleWorks. But you now understand that AppleWorks must work within the limits of your printer's text mode command structure. Thus, the quality of your printouts depends on the features supported by the ROM in your printer and AppleWorks' ability to generate the commands recognized by the printer.

[John Link is a Professor of Art at Western Michigan University. He is the developer of SuperPatch, Twister, Bank Sizer, and other AppleWorks enhancements. Mr. Link is also an AppleWorks consultant.]

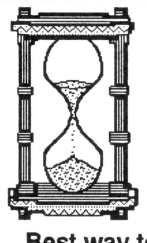
News and Special Offers for NAUG Members

Panasonic's new KX-P1124i dot matrix printer produces excellent output from AppleWorks. Dr. G. D. Norsworthy of San Antonio, Texas compiled the codes necessary to use this printer with AppleWorks. For a free copy of Dr. Norsworthy's codes, send a self addressed, stamped business-size envelope to "KX-P1124i Codes", **NAUG**, Box 87453, Canton, Michigan 48187.

NAUG members who use other Panasonic printers should request the "Panasonic Printer Codes" developed by Stan Hecker with enhancements by Richard Martone. The "Panasonic Printer Codes" document describes how to use many of the features available on Panasonic dot matrix printers other than the KX-P1124i. For a free copy, send a self-addressed envelope with 52 cents postage to "Panasonic Printer Codes" at the **NAUG** address.

NAUG recently added a 24-hour fax line ((313) 454-1965) that members can use to submit articles, place orders, and ask membership questions. However, we ask that members not send requests for AppleWorks help over the fax line.

With almost 15,000 members, **NAUG** cannot provide timely technical help in response to mail, fax, or telephone messages sent to the **NAUG** office. Instead, **NAUG** provides AppleWorks technical support through its Members Helping Members program. The Members-Helping-Members volunteers listed in each issue of the ***AppleWorks Forum*** answer hundreds of questions each week from your fellow **NAUG** members.



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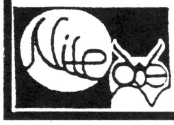

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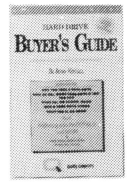

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How to Install TimeOut on a 5.25-inch Disk Drive System

by Pete Ross

Although the installation program supplied with the AppleWorks 3.0-compatible versions of TimeOut is easy to use, some owners of 5.25-inch disk drive systems find getting started with TimeOut a bit awkward. This article will help those users.

Some Background

TimeOut consists of the TimeOut program itself and a series of "applications" or "modules" that perform useful tasks not included in AppleWorks. The applications work under the control of the TimeOut program that links the applications to AppleWorks; the TimeOut program assumes that any file with a file name that begins with "TO." is a TimeOut application. Some TimeOut applications (e.g., Thesaurus, Area Codes, and Librarian) also use data files provided with the program.

Every TimeOut disk includes the TimeOut program, the Installer, the Utilities, one or more TimeOut applications, and any data files required by the application. With the exception of UltraMacros, all TimeOut disks include the same Installer, thus you can use the Installer on any AppleWorks 3.0-compatible TimeOut disk. (If you own UltraMacros, you should use the Installer on that disk.)

Back Up Your Disks

Start by making backup copies of your AppleWorks and TimeOut disks. TimeOut automates the backup process. Proceed as follows:

1. Boot your original TimeOut disk.
2. Press the Return Key three times until you see a menu that lets you choose between "Read manual updates" or "Install TimeOut".
3. Select #2, "Install TimeOut" and press the Return Key twice.
4. The TimeOut Installer will display the message "Select the disk drive for the original disk" and will highlight "Disk 1 (Slot 6)". You will be copying from Drive 1 to Drive 2, so press the Return Key to accept the default disk location.
5. The Installer will ask you to "Select the disk drive for the backup disk". Insert a blank disk in Drive 2 and press the Down Arrow or appropriate number key to highlight "Disk 2 (Slot 6)". Press the Return Key.
6. TimeOut will confirm your selections and remind you to write protect your original disk. Remove the disk from Drive 1 and wrap one of the small silver or black labels that came with your new disks over the notch on the side of the disk. Then replace the disk and press the Return Key twice to start the backup process.
7. The Installer assumes that any formatted disk contains data and will warn you if Drive 2 contains a formatted disk. Respond to any prompts that appear. Drive 2 will rattle as the heads move against the stop. The series of rhythmic clicks that follow indicate that the Installer is copying your disk. The Installer will then display the message "Backup complete. Press Return". Press the Return Key.
8. The Installer will return to the "Have you backed up all your disks yet?" message. Press the Return Key and repeat steps 4 through 8 to make a copy of each original TimeOut disk and your AppleWorks disks. Label each copy.

Installing TimeOut

9. Now that you have backups, you can install the TimeOut program on your working copy of AppleWorks. Start by responding "Yes" to the "Have you backed up all your disks yet?" prompt.
10. Insert the copy of your TimeOut disk in Drive 1.

11. The Installer will ask, "Where is AppleWorks?". Select "Slot and Drive" and press the Return Key.

12. Highlight "Disk 2 (Slot 6)" and press the Return Key.

13. Put the Startup side of the AppleWorks Program Disk in Drive 2 and press the Return Key. The screen will display a box that reports the progress of the installation process and will ask you to press the Return Key after it installs TimeOut.

Preparing a TimeOut Applications Disk

14. TimeOut "knows" there isn't enough room on a 5.25-inch AppleWorks disk for the TimeOut applications, so it expects you to "collect" your TimeOut applications on a separate disk. The next screen begins the process of formatting a disk to hold the TimeOut applications.

    Insert a blank disk in Drive 2, and press the Return Key twice. TimeOut warns you and lets you change disks if the disk in Drive 2 is already formatted. Eventually, the drive rattles and the program formats the disk. Press the Return Key when it finishes.

15. The Installer displays three boxes and tells you to "Place your Applications Disk in the drive at: Disk 2 (Slot 6)". Since your disk is already in place; press the Return Key.

16. The Installer asks you to "Place DeskTools in the drive and press Return" (the program displays the name of your TimeOut disk, "DeskTools" in this example). Your TimeOut disk is already in Drive 1, so you can press the Return Key.

    The Installer now copies the appropriate files onto your new Applications Disk and lists the files it copies. Eventually, "Applications successfully copied. Press Return" appears at the bottom of the screen. Press the Return Key if you want to copy more TimeOut modules onto the Applications Disk. Press the Escape Key if you copied all the modules onto the disk. *[Ed: Some TimeOut applications (e.g., SuperFonts) require you to press the Escape Key twice.]*

17. TimeOut presents a menu that lets you "Read manual updates" or "Quit". You should read the manual updates; they contain information that does not appear in the documentation. Then quit the Installer.

What If You Buy More Modules?

With one exception (UltraMacros, see below), you only go through the TimeOut installation process when you buy your first TimeOut module. If you buy additional modules, you can use the System Utilities, FileMaster, Copy II+, the IIGS Finder, or any utility program to copy all files starting with "TO." and any associated data files onto your Applications Disk. If you cannot fit all the modules on a single disk, you can copy the remaining applications onto a second or even third disk as long as you assign the same ProDOS volume name to all your Applications Disks.

The one exception to the Install-TimeOut-only-once rule is TimeOut UltraMacros. Because UltraMacros adds an additional level of control beyond TimeOut, you must use the Installer program on the UltraMacros disk to re-install TimeOut on your AppleWorks Startup Disk. However, you do not have to re-create your Applications Disk; just use any utility program to copy the files TO.COMPILER and TO.OPTIONS from the UltraMacros disk onto your Applications Disk.

Running AppleWorks

If you use 5.25-inch disks, you must make two changes in your operating procedures to use TimeOut:

1. Put the Applications Disk in Drive 2 before you boot AppleWorks. Do not remove that disk until the Main Menu appears on the screen. TimeOut must find all your applications during the bootup process. If you have more applications than will fit on one disk, follow the prompt to insert additional applications disks.

2. Issue an Apple-Escape to get to the TimeOut Menu and then insert your Applications Disk before you select a TimeOut application. Don't worry if you forget to insert the Applications Disk; TimeOut will remind you if it cannot find the disk in a drive.

[Pete Ross is a junior high school English teacher in Westland, Michigan.]

Quick Tip

How to Restore Your Default Macros

by Wade Spafford

Anyone who does serious work with TimeOut UltraMacros finds themselves constantly switching between task files. The macros in *Figure 1* make it easy to return to your UltraMacros default macro set from any task file. Just put these macros near the beginning of each macro set and enter a <ba-c> from within the word processor, or an <ba-L> from anywhere in AppleWorks to return to your default macros.

[Wade Spafford owns Insight, a Cleveland (Ohio) company that provides multiple services to other small businesses.]

Figure 1: Macros that Restore UltraMacros' Default Set

```
<ba-c>:<awp $Ø = "Macro Compiler" :          { Store "Macro Compiler" in variable $Ø.          }
oa-esc : find :                              { Invoke TimeOut and look for "Macro Compiler".   }
if z = Ø :                                   { If not found...                                 }
   then msg $Ø + "not found" :               { ...display a message...                         }
   bell : stop :                             { ...sound the bell, and stop.                    }
elseoff :                                    { If found...                                     }
   rtn :                                     { ...invoke the Macro Compiler...                 }
   oa-rtn>!                                  { ...and launch the default macros.               }
<ba-L>:<all Launch "Ultra.System">!
```


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Macros Make It Easier to Use Your Printer

by Keith Johnson

How many times have you torn the paper when you remove a page from the printer? Some users eliminate this problem by rolling the platen forward so the bottom of the page is even with the edge of the dust cover. Then they tear off the paper against the smooth edge of the dust cover and roll the platen backwards to line up the paper for the next print job.

Unfortunately, rotating the platen with the printer turned on strains the motor; the ImageWriter manual tells us to turn the printer off before rotating the platen. But turning your printer on and off repeatedly is hard on the unit.

NAUG member John Lorch solved this problem with the two macros in *Figure 1*. The <sa-ctrl-f> macro ejects the current page. The <sa-ctrl-r> macro rewinds the extra paper back into the printer.

Technical Details

The "Escape r" ("reverse") command tells an ImageWriter to turn the platen backwards whenever it receives a Carriage Return. The "Escape f" ("forward") sequence switches the printer back to its default setting. The statements `print chr$ 27 + "r"` and `print chr$ 27 + "f"` in the macros send the Escape-r and Escape-f commands respectively. Other printers use different commands; check the

Figure 1: Macros that Move the Platen

```
<ctrl-f>:<all :                    { Define macro that works anywhere in AppleWorks.    }
pr# 1 :                            { Direct the output to printer #1.                   }
print chr$ 27 + "f" :              { Send the forward motion command.                   }
z = 1 :                            { Initialize the counter.                            }
begin :                            { Start the loop.                                    }
  z = z + 1 :                      { Increment the counter.                             }
  bell :                           { Sound a beep.                                      }
  print chr$ 13 :                  { Send a Carriage Return.                            }
  if z < 14 rpt :                  { If not done, repeat the loop.                      }
endif :                            { If done, continue.                                 }
pr# Ø>!                            { Redirect the output to the screen.                 }

<ctrl-r>:<all :                    { Define macro that works anywhere in AppleWorks.    }
pr# 1 :                            { Direct the output to printer #1.                   }
print chr$ 27 + "r" :              { Send the reverse motion command.                   }
z = 1 :                            { Initialize the counter.                            }
begin :                            { Start the loop.                                    }
  z = z + 1 :                      { Increment the counter.                             }
  bell :                           { Sound a beep.                                      }
  print chr$ 13 :                  { Send a Carriage Return.                            }
  if z < 14 rpt :                  { If not done, repeat the loop.                      }
endif :                            { If done, continue.                                 }
print chr$ 27 + "f" :              { Reset to forward motion.                           }
pr# Ø>!                            { Redirect the output to the screen.                 }
```

printer manual to determine what to substitute for these command strings.

The <pr# 1> token directs all "print" output to the first printer on the AppleWorks Printer Menu. Changing this statement to <pr# 2> or <pr# 3> sends the output to the second and third printers on the Printer Menu respectively. (UltraMacros' <pr#> token is unrelated to the BASIC "PR#" command which refers to slots in your computer. Remember to include a space between the "#" and the number when you type the <pr# 1> token.)

Note that the <sa-ctrl-r> macro issues an Escape-f to reset the ImageWriter to its default forward setting. AppleWorks automatically resets the printer each time it prints a document. However, the `print chr$ 27 + "f"` statement in the macro resets the printer in case you quit AppleWorks immediately after running the <sa-ctrl-r> macro.

Customizing the Macros

Mr. Lorch assumes that you use one inch top and bottom margins when you print and that you start with the top of the paper even with the print head. If you put the top of the paper one inch above the print head and accept AppleWorks' top and bottom margin defaults, you must change the `if z < 14 rpt :` statements to `if z < 8 rpt :`.

The macros tell you they are working by sounding the AppleWorks "bell" each time they send a Carriage Return. You can turn off the beeps by deleting the <bell> tokens.

Creative users can modify these macros for other applications. For example, I roll the platen backwards so the tractor-feed paper is out of the way when I print an envelope. I revised the z-value in the "if" statement and now use the macro to save wear on the printer.

[Keith Johnson is Associate Director of the Fleischmann Planetarium at the University of Nevada.]

[John Lorch is a grant writer for the State of Connecticut.]

How to Use UltraMacros to Calculate a Single Cell

by Steve Beville

Watching AppleWorks recalculate a large spreadsheet is both tedious and time consuming. This is particularly true when all you need to see is the impact of your data entry on a single cell. But try as you might, AppleWorks insists on looking for any other cells that need recalculation.

But you don't have to wait for AppleWorks. Here is a procedure that forces AppleWorks to recalculate only a single cell:

1. Use the Apple-V command to turn off automatic calculation. The keystroke sequence is Open-Apple-V, R, F, M.
2. Change the data in one or more cells.
3. Put the cursor on the cell you want to recalculate.
4. Issue an Apple-U command to bring the cell contents to the edit line.
5. Make certain you have the insert cursor active. Then type any character, press the Delete Key to delete the character, and press the Return Key. AppleWorks will assume that you changed the formula and will recalculate the current cell.

The following UltraMacros macro automates this procedure:

```
9:<asp: oa-u : insert : spc : del : rtn>!
```

Be careful using this technique if you have formulas in other cells that refer to the cell you just recalculated. Those cells won't display the correct values until you recalculate the entire spreadsheet.

[Steve Beville is an AppleWorks consultant from Spartanburg, South Carolina.]

*[Ed: Mark Munz's book, **The UltraMacros Primer**, teaches you everything you need to know to use TimeOut UltraMacros. $19.95 plus $3.50 s/h. **NAUG** members deduct $2. Order directly from **NAUG**.]*

New Disks in the NAUG Library

Power Macros II

The **NAUG** Public Domain Library now includes Power Macros II, a collection of powerful and valuable macros developed by John Tegelaar of The Netherlands. Power Macros II includes Hyphenator (automatically hyphenates AppleWorks word processor documents), Bio-Rhythm (creates bio-rhythm charts within AppleWorks), Finder Launch (lets Apple IIGS users double click on an AppleWorks file to launch AppleWorks and load the file onto the AppleWorks desktop), ListMaster (creates a list of words in a document), IndexMaster (creates an index), QuickTask (makes it easy to manage Task Files), Readability Meter (generates a readability index for your writing), Table of Contents Maker (prepares a table of contents), and Spaced Writing (inserts spaces between letters in a block of text).

Power Macros II, which includes complete documentation in word processor files on the disk, requires AppleWorks 3.0 enhanced with UltraMacros 3.1 or later. The Power Macros II disk is shareware; you send the author $15 if you use the macros on the disk.

Mr. Tegelaar's original Power Macros Disk (now re-named Power Macros I) is still available from **NAUG**. That disk includes Debug, IIGS Cursor Control, Indent Codes, MouseText Typer, MouseText Printer, Save to Subdirectory, Quick Path Selector, Add Accents, Word Count, Screen Saver, Universal Date Macro, Siren Sound, Apple Game, and Random Expression Generator. A description of these macros appears on page 33 of the December 1990 issue of the ***AppleWorks Forum***.

RamDisk Tutor

The **NAUG** Public Domain Library now includes a new version of Steve Ellis' RamDisk Tutor. RamDisk Tutor contains a series of word processor documents that teach you how to configure an Applied Engineering RamWorks card so it works as a RAM disk with AppleWorks. (Using a RAM disk dramatically enhances the speed of the program and eliminates the need for disk swaps on 5.25-inch systems.)

The RamDisk Tutor also includes RamBack, Mr. Ellis' program that quickly restores your RAM disk after you run other programs, crash to the monitor, or lock up AppleWorks.

NAUG recommends this disk to all members who have a RamWorks card with one megabyte or more of memory. Our thanks to Mr. Ellis for developing this excellent disk and for contributing his work to the **NAUG** library.

Sneeze

NAUG is now shipping version 1.1 of Sneeze, Karl Bunker's text-display, menu, and program launcher. Sneeze lets you navigate through disks and directories, launch programs (including 16-bit programs on Apple IIGS computers), print and/or display AppleWorks word processor files without launching AppleWorks, display most popular graphic files without launching the applications used to create the files, and copy files. Version 1.1 of Sneeze scrolls faster and can display 3200-color graphics on the IIGS.

Sneeze runs on all Apple IIc, IIc+, IIe, and IIGS computers and most Apple compatibles. However, IIGS owners who want Sneeze should get the GS.PowerTools Disk, which includes Sneeze and 12 other powerful utility programs. (See the description of GS.PowerTools on page 32 of the August 1991 issue of the ***AppleWorks Forum***).

How to Get Disks

All disks are available in both 5.25-inch ($4) and 3.5-inch ($6) format, plus $2 s/h *per order*. Order from Public Domain Library, **NAUG**, Box 87453, Canton, Michigan 48187; (313) 454-1115. **NAUG** accepts Visa and MasterCard. All **NAUG** disks are also available for downloading from **NAUG**'s electronic bulletin board, the Electronic Forum, and from the **NAUG** areas on CompuServe, America Online, and GEnie.

How to Edit BASIC Programs with AppleWorks

by Mitchell Bernstein

An article in the August 1986 issue of the ***AppleWorks Forum*** *described how to create BASIC programs with AppleWorks. This month, Mitchell Bernstein describes how to use AppleWorks to modify an existing BASIC program. The author assumes that you know AppleWorks and AppleSoft BASIC.*

There are at least three reasons to use AppleWorks to create and edit your BASIC programs:

1. AppleWorks offers an extensive set of editing features not available in BASIC.
2. The AppleWorks clipboard lets you concatenate BASIC programs and/or routines.
3. AppleWorks' Replace Command makes it easy to modify programs to run on other computers.

Preparing Your BASIC Program

If you ever tried to load a BASIC program into AppleWorks as a text file, you noticed that AppleWorks replaces the line numbers and much of the BASIC program with unintelligible symbols. Only your PRINT statements remain relatively intact. You discovered that BASIC programs are not text files and that this is *not* the way to load programs into AppleWorks.

Instead, you must add 5 lines to the beginning of the BASIC program. Those instructions will save the program as a text file on your disk. Then you can load the text file into AppleWorks.

I will assume that the BASIC program starts with line number 6 or higher. If the program uses line numbers 1 to 5, you must renumber those lines so BASIC does not delete them when you type the new lines.

Follow these steps:

1. Get into BASIC and issue the command
   `LOAD filename`
   where "filename" is the name of the program you want to edit.
2. Put a formatted ProDOS disk in the drive you used to load the BASIC program. (For the purpose of this article, I will assume that the name of the disk is /DATA.) You can use the disk that contains the original BASIC program, but make certain that the disk has as much unused space as the original BASIC program required.
3. Now you will modify the program. Type the following lines:

```
1 D$ = CHR$(4): PRINT D$;"OPEN TEXT"
2 PRINT D$;"WRITE TEXT"
3 LIST
4 PRINT D$;"CLOSE TEXT"
5 END
```

4. Type RUN and press the Return Key. The brief routine you just entered will create a file called TEXT on the ProDOS disk. This file contains a listing of the program and the five lines you added in step #3.
5. Launch AppleWorks and insert the disk with the text file you just created. Indicate that you want to create a new word processor file "From a text (ASCII) file". If you use AppleWorks 3.0, select the file named TEXT from the directory. If you use an earlier version of AppleWorks, type the pathname /DATA/TEXT and assign a new name to the AppleWorks version of the program. (I append ".AW" to the original name of the BASIC program, so the file in this example

would become filename.AW, where "filename" is the original name of the BASIC program.)

6. Set the left and right margins to zero and delete lines 1 through 5. Edit the program. Note that PRINT statements longer than one line on the screen might not format properly. Segment these statements so that each PRINT statement fits on a single line.
7. Issue an Apple-S command to save the edited program as an AppleWorks word processor document. That lets you make additional changes to the BASIC program without reading it back into AppleWorks.

BASIC cannot read AppleWorks files, so you must save the program as a text file and then convert that file back into BASIC. Follow these steps:

8. Print the document as "A text (ASCII) file on disk". If you use version 3.0 of AppleWorks select "Standard text format with Tabs". Enter the pathname /DATA/TEXT and tell AppleWorks to replace the existing file.
9. Quit AppleWorks and launch AppleSoft BASIC.
10. Insert the /DATA disk in a drive and type

```
PREFIX /DATA
-TEXT
```

A series of "]" signs will appear on the screen as BASIC converts the text file into AppleSoft BASIC.

11. Type

```
SAVE filename
```

Use a new filename if you want to save both the original and edited versions of your BASIC program.

You can now launch the program with the RUN command as if you created the program in BASIC.

[Some of the information in this article was adapted from Jules Shrage's article entitled "How to Use AppleWorks As a BASIC Editor", which appeared in the August 1986 issue of ***AppleWorks Forum****.]*

[Mitchell Bernstein teaches mathematics at the Philadelphia (PA) High School for Girls.]

HP Introduces New InkJet Cartridge and Color Printer

Hewlett Packard recently announced the availability of high capacity inkjet cartridges for the company's DeskJet and DeskWriter printers. The new cartridge (Part 51626A) prints approximately 1,000 pages and lists for $31.95. The original cartridge, which prints approximately 500 pages and lists for $19.95, remains in the product line. HP print cartridges and third party refill kits are available at significant discounts from mail order dealers.

Hewlett Packard also announced the availability of the HP DeskWriter-C, a color-capable version of the company's popular Macintosh-compatible DeskWriter printer. HP positions the DeskWriter-C as an economical, 300 dpi monochrome printer that also offers color output. To change from monochrome to color, the user replaces the blank-ink print cartridge with a new tri-chamber, color-ink cartridge. The printer prints a monochrome page in approximately 20 seconds and a color page in about four minutes.

The DeskWriter-C works with Macintosh computers and should be compatible with AppleWorks running on a Macintosh LC equipped with an Apple IIe Card with the new Apple IIe Card Software. The DeskWriter-C is not compatible with AppleWorks running on Apple II series computers.

The DeskWriter-C lists for $1,095 and is available at significant discounts from mail order dealers.

[Hewlett Packard, 19310 Pruneridge Avenue, Cupertino California 95014; (800) 752-0900.]

NAUG BBS

Congratulations to Walter Caulfield of Pascagoula, Mississippi, the 60,000th caller to the Electronic Forum, **NAUG**'s AppleWorks Bulletin Board. Mr. Caulfield won a one-year extension to his **NAUG** membership. Call the Electronic Forum for help with AppleWorks or to download templates, fonts, or utility programs. A free service of **NAUG**. (615) 359-8238.

Toward a Faster Apple IIGS

by John Link

NAUG recently loaned me two experimental high speed microprocessor chips produced by ASIC Enterprises. These units, which replace the Western Design Center (WDC) 65C816 microprocessor used in the Apple IIGS and all IIGS accelerators, were impressive. Their existence suggests that a faster IIGS could be in our future.

Compatibility

Both prototypes worked successful with my modem, floppy disks, SCSI interface, mouse, and all the CDAs, NDAs, and inits I normally use in my system. They also worked with AppleTalk, except when installed on a Zip GS (which itself has difficulty with AppleTalk). *[Ed: See the review of the Zip GS in the June 1991 issue of **AppleWorks Forum**.]*

ASIC vs. WDC: A Tie?

Although ASIC Enterprises designed their chip to operate at speeds up to 22 MHz, the two prototypes performed no better than the engineering-grade 65C816s I bought last year from WDC. That is, both the ASIC and WDC chips ran reliably at speeds up to 10.5 MHz in my TransWarp GS-equipped computer.

At 11.5 MHz, the ASIC chip would complete the boot process, but failed after two minutes. (By comparison, the WDC chip would not perform even the first steps of the boot process at this speed.) Although the 11.5 MHz performance of the ASIC chip shows promise, the brief period I could keep it running certainly does not constitute successful operation at that speed.

The ASIC prototype performed less well in the Zip GS. Although my WDC engineering-grade chip runs reliably at 10 MHz in the Zip accelerator, the best I could get from the ASIC chip was 9 MHz. Even then, it did not prove fully reliable. (I attribute this to differences between the ASIC and WDC chips, not to problems in the Zip product. ASIC Enterprises will need to change their design if they want their chip to work with the Zip GS, which some users operate at 12 MHz and beyond, using WDC chips and refrigeration units attached to the chip.)

The ASIC Advantage

One impressive aspect of the ASIC prototypes is their ability to operate at standard Apple IIGS voltages without a system fan. In fact, increasing the power beyond 5 volts did not improve the performance of the ASIC-equipped TransWarp GS and substantially degraded the performance of the ASIC-equipped Zip GS. By contrast, my WDC chip requires a heavy duty power supply that provides 5.5 volts to the CPU and a system fan for reliable operation at speeds beyond 8 MHz.

Equally impressive is the ASIC chip's design, which uses standard gate array technology that is predictable and stable. By changing to the commonly used .8 micron technology for the final model, the ASIC chip should run 40 percent faster than the current prototypes. (Both prototypes use the older and slower 1.5 micron technology.) Most importantly, using gate arrays assures that each production run will yield a large proportion of high speed chips. That would make it easy for ASIC to produce reliable high speed chips at a reasonable cost to anyone who needs them in large quantities.

By comparison, only a small proportion of the WDC 65C816 chips can run at these higher speeds, and WDC must hand test all the chips to identify those that are capable of the higher speeds. This is both costly and discouraging to companies that want to design products that use high speed processors.

The third important advantage of the ASIC chip is that its entire instruction set appears to work correctly at high speeds. That eliminates the need for work-arounds such as the special 3E GAL used in the TransWarp GS to overcome problems in the WDC processor. The ASIC chip would be a true

high speed replacement for the current chip shipped with the IIGS.

Thus, while the prototypes I tested yielded about the same performance as the WDC engineering chips, they suggest that a very high speed IIGS could be manufactured in quantity, without any increase in price.

The Challenge to Apple

Many Apple II users believe that Apple deliberately stopped developing the IIGS so it would not compete with the Macintosh. But it is just as likely that Apple turned away from the IIGS because fast 65C816 chips were not available in the quantities needed by their large manufacturing operation. Without a sufficient supply of those chips, the Apple IIGS could not hope to compete with the high speed Macintosh and MS-DOS computers then coming to market.

I have heard statements which assert that since Applied Engineering and Zip Technology can produce a 7 MHz IIGS, then so should Apple. Yet, engineers who have a working knowledge of the 65C816 tell me that at least two of its instructions fail beyond a relatively slow 4 MHz, even in chips stamped for 6, 7, and 8 MHz operation. Thus, I understand why Apple, with its need for a large supply of high speed, reliable microprocessors, never introduced a faster IIGS and left the task to third parties to design accelerators which would cope with the problematic instructions.

But the prototype chips from ASIC Enterprises create an interesting opportunity. Apple could use the ASIC chip to produce a 10-12 MHz motherboard that would be equivalent to a current model IIGS equipped with a 15 to 16 MHz accelerator. The difference in performance from today's 2.8 MHz Apple IIGS would be dramatic.

Whether there is enough interest to justify future development of the ASIC chip remains to be seen. Meanwhile, such developments would be far in the future; I would not let them affect my current decision to buy or accelerate an existing IIGS system.

[ASIC Enterprises, Box 6114, Thousand Oaks, California 91359; (805) 378-5022.]

Update for October 1991

Enter the default values for these categories: Volume #: 7 • Issue #: 10 • Date: Oct 91

Letters to NAUG • 2 • Problems Printing Tabs • White, Charles • AppleWorks 3.0; printing; tabs; word processor

Letters to NAUG • 2 • How to Cancel Call Waiting • Barnes, Brent • BBS; modems; communications; telecommunications

Letters to NAUG • 3 • Configure Your Zip Chip Correctly • Johnson, Keith • Zip Chip; speed; PC Transporter; slots

Letters to NAUG • 3 • Kudos for Quality Computers • Shanker, Bruce • Quality Computers

Letters to NAUG • 3 • Problems with Desk Accessories • Noonan, Kevin • Quickie; bugs; Apple IIGS; Scanners; GS.PowerTools

My Favorite Template • 5 • A Teacher's Seating Chart • Hecker, Stan • templates; spreadsheets; education; @LOOKUP

AppleWorks News • 10 • News from Beagle Bros and JEM Software • N/A • Beagle Bros; JEM Software; Companion Plus; foreign languages

Spreadsheet Tips • 11 • How to Use @ROUND • Merritt, Cathleen • spreadsheets; @ROUND; financial; formulas; SANE

Spreadsheet Tips • 12 • Doing More with @ROUND • Jones, Ed • spreadsheets; @ROUND; financial; formulas

Apple IIGS • 13 • How to Use an Extended Keyboard with AppleWorks • Roemer, William C. • keyboards; macros; Apple IIGS; UltraMacros; numeric keypad; templates; MacPro; Keytronic; PowerTools

Public Domain Update • 16 • New Disks in the NAUG Library • N/A • AppleWorks Footnote System; Computer Terms; footnotes; dictionaries

UltraMacros Primer • 17 • How to Use UltraMacros' <read> Command • Beville, Steve • UltraMacros

AppleWorks News • 18 • News and Special Offers • N/A • FrankSoft Publishing; DB.Link; finance; data bases

Inside AppleWorks • 19 • Understanding SEG.PR and SEG.ER — Part 3 • Link, John • SEG.PR; printing; ImageWriter; printer codes; Epson; printers; justification; boldface

NAUG News • 23 • News and special offers for NAUG members • N/A • Panasonic; Members Helping Members; printers; printer codes; fax

Novice Notes • 25 • How to Install TimeOut on a 5.25-inch Disk Drive System • Ross, Pete • TimeOut; 5.25-inch disk drives; UltraMacros

Quick Tip • 27 • How to Restore Your Default Macros • Spafford, Wade • TimeOut; UltraMacros; macros

My Favorite Macro • 28 • Macros Make It Easier to Use Your Printer • Johnson, Keith • printers; macros; envelopes; UltraMacros; ImageWriter

Quick Tip • 29 • How to Use UltraMacros to Calculate a Single Cell • Beville, Steve • spreadsheets; calculations; macros; UltraMacros

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General Interest • 31 • How to Edit BASIC Programs with AppleWorks • Bernstein, Mitch • BASIC; AppleWorks

AppleWorks News • 32 • HP Introduces New InkJet Cartridge and Color Printer • N/A • Hewlett Packard; printers; DeskJet; ink jet; DeskWriter

Apple IIGS • 33 • Toward a Faster Apple IIGS • Link, John • ASIC Enterprises; Western Design Center; speed; Apple IIGS

Members Helping Members • 35 • How to get help with Apple IIGS • Luoma, Nanette • Apple IIGS; hardware; DiversiKey; SoftSwitch; TransWarp GS; GS/OS; AppleWorks GS

New Key Words: RamDisk Tutor; ASIC Enterprises; 5.25-inch disk drives; AppleWorks Footnote System; Computer Terms; PowerTools; @LOOKUP; numeric keypad; DeskWriter; fax

Apple IIGS Hardware and Software

by Nanette Luoma

How to Use this List

To the left of each volunteer's name are numbers indicating the items the consultant supports. Volunteers are listed alphabetically by state.

1 = Hardware
2 = Diversi Key
3 = SoftSwitch
4 = TransWarp GS
5 = GS/OS
6 = Desk Accessories
7 = AppleWorks GS

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